

Question 1 of 191

Question Difficulty:

Easy

Mrs. X was referred after right mastectomy axillary due to a breast cancer with axillary lymph node resection. The tumor cells analysis shows estrogen and progesterone receptor-positive. He surgeon considered starting her on anastrozole treatment.

Which of the following is the mechanism of action anastrozole?

- ☐ It blocks the ovarian production of estrogen
- ☐ It blocks the production of progesterone
- ☒ It blocks the peripheral tissue conversion of androgens to estrogen
- ☐ It is a progesterone-receptor antagonist
- ☐ It is an estrogen-receptor antagonist

Description

Aromatase inhibitor therapy (Anastrozole) is indicated as adjuvant treatment in estrogen receptor-positive breast cancer. It blocks the peripheral tissue conversion of androgens to estrogen.

CHECK ANSWER

END SESSION

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Session Statistics

■ Answered: 0

✓ Correct: 0

✗ Incorrect: 0

📊 Average Score: 0 %

Question 2 of 191

Question Difficulty:

Hard

42 years Mrs. X is complaining of 6-month history of facial flushing. She is known to be hypertensive and is a type-2 diabetic. She also noted amenorrhea for 2 months and pregnancy. Investigations reveal:

Serum prolactin	8 ng/L	Non-gravid/non-lactating: 2-29 ng/mL
LH	8 IU/L	1-20 IU/L
FSH	30 IU/L	1-20 IU/L
TSH	1.6 u/I	(0.5-4.5 u/I)

What is the most likely diagnosis?

- ☐ Anxiety
- ☒ Menopause
- ☐ Pregnancy
- ☐ Diabetic neuropathy
- ☐ Iatrogenic

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- ☐ Diabetic neuropathy
- ☐ Iatrogenic

Description

This lady has entered into menopause. Vasomotor symptoms as hot flashes are common. Hormonal changes of menopause include elevated FSH levels with estradiol levels remain unchanged.

CHECK ANSWER

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Question 3 of 191

Question Difficulty:

Easy

Mr. X is complaining of palpitation for 3 months. Examination reveals irregularly enlarged neck mass.

TSH	2 U/I	(0.5-4.5 U/I)
Free T4	12 pmol/L	10 - 23 pmol/L
Free T3	4 pmol/L	3.5 - 6.5 pmol/L
ESR	88 1st hour	
Serum calcium	3.1 mmol/L	(2.1-2.8 mmol/L)

Neck ultrasound reveals an irregular mass invading the capsule. CT abdomen reveals a suprarenal mass.

What is the most likely diagnosis?

- ☐ Papillary thyroid cancer
- ☒ Thyroid lymphoma
- ☐ Follicular thyroid cancer
- ☒ Medullary thyroid cancer
- ☐ Toxic solitary nodule

Description

This patient has Medullary thyroid cancer as a part of MEN type2. There is Pheochromocytoma and hypercalcaemia due to increase secretion of calcitonin.

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Question 4 of 191

Question Difficulty:

Easy

Mrs. X was admitted to the ED due to agitation, palpitations, marked muscle weakness and diarrhea. She has a history of type-1 diabetes mellitus and pernicious anemia. She has a past history of thyrotoxicosis previously treated with radiiodine therapy.

Examination reveals she has high fever at 41.5 C and BP of 180/80 mmHg. She is flushed, disorientated, agitated and jaundiced.

Investigations show:

Hemoglobin	10 g/dL	(Male: 11.5-13.5 g/dL)
Leucocyte count	9 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Fasting glucose	2.5 mmol/l	(3-6 mmol/l)
TSH	0.2 U/l	(0.5-4.5 U/l)
Free T4	28 pmol/L	10 - 23 pmol/L

What is the most likely diagnosis?

- ☒
 Thyroid storm
- ☐
 Hypothyroidism
- ☐
 Hepatitis
- ☒
 Paroxysmal atrial fibrillation
- ☐
 Pheochromocytoma

Description

This patient has thyroid storm (thyrotoxic crisis). Thyroid storm is an acute, life-threatening, hyper metabolic state induced by excessive release of thyroid hormones in individuals with thyrotoxicosis.

It is manifested by fever > 41°C, respiratory distress, cardiac arrhythmia, hypertension, abdominal pain, nausea and vomiting, seizures and coma.

CHECK ANSWER

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Question 5 of 191

Question Difficulty:

Hard

Mr. X was complaining of acromegaly with change in his facial appearance and enlargement of his hands with elevated prolactin. Brain MRI shows 0.8 CM pituitary tumor. Neurosurgeon recorded the patient is unfit for surgery.

What is the management of choice?

- ☒ Follow up
- ☒ Bromocriptine
- ☐ External irradiation
- ☐ Octreotide
- ☐ Pegvisomant

Description

Somatostatin analogue (octreotide) is effective in reducing GH and shrinking tumor size but it is not indicated for this patient due to small tumor size and absence of compression symptoms.

Dopamine agonists (bromocriptine, cabergoline) are less effective than somatostatin analogue, they can be used in tumors that secrete both PRL and GH.

CHECK ANSWER

END SESSION

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Session Statistics

📊 Answered 4

✓ Correct 1

✗ Incorrect 3

📈 Average Score: 25 %



Question 6 of 191

Question Difficulty:

Hard

Mrs. X was referred to endocrinology clinic for enlarged thyroid gland which was noticed 3 months after an eventful delivery. She also reported palpitations and weight loss.

Investigations showed:

TSH	0.4U/l	(0.5-4.5 U/l)
Free T4	20 pmol/L	10 - 23 pmol/L
Free T3	5.6 pmol/L	3.5 - 6.5 pmol/L
Anti-TPO	positive	

Radioactive iodine showed normal intake.

What is the management of choice?

- ☐ Block and replacement regimen
- ☒ Observe and repeat thyroid function tests in 1 month
- ☐ Propylthiouracil
- ☐ Carbimazole
- ☐ Thyroid hormone replacement

Description

This patient has postpartum thyroiditis with subclinical hyperthyroidism. Women with PPT present with transient hyperthyroidism followed by hypothyroidism. Post-partum thyroiditis is differentiated from Graves' disease by a lack of increased uptake on thyroid scanning.

Management is symptomatic using beta-blockers for relief of tremor or anxiety with observation for the development of persistent hypo- or hyperthyroidism.

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Question 7 of 191

Question Difficulty:

Hard

14 years old teen is suffering from delayed pubertal development. Examination reveals that his height was above average, his has a small penis and testicular volumes was3 mL bilaterally and no pubic hair. Investigations show:

Serum prolactin	15 ng/L	Men 2-18 ng/mL
Serum growth hormone	2 ng/mL	Men: <5 ng/mL
TSH	2 IU/l	(0.5-4.5 U/l)
LH	0.6 IU/L	Males 1-10 IU/L
FSH	0.4 IU/L	Males 1-7 IU/L
Testosterone	90 ng/dL	240-950 ng/dL

What is the most likely diagnosis?

- ☐ Mumps orchitis
- ☐ Cryptorchidism
- ☒ Hyperprolactinemia
- ☐ Klinefelter syndrome
- ☐ Kallmann syndrome

Description

Kallmann syndrome is a genetic condition causing delayed puberty secondary to hypogonadotropic hypogonadism. It is caused by failure of GnRH-secreting neurons to migrate to the hypothalamus. It manifested by:

Kallmann syndrome is differentiated from Klinefelter syndrome by the presence of anosmia caused by hypoplasia of the olfactory bulbs, cleft lip, palate and visual and hearing defects. Kallmann syndrome is hypogonadotropic hypogonadism.

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Question 8 of 191

Question Difficulty:

Easy

Mrs. X who works as a pharmacist is complaining of palpitations and weight loss for the past 3 months.

Examination reveals BP is 145/90 mmHg, pulse is 110/min at rest and BMI of 20. There is no noted neck lump. Investigations show:

Hemoglobin	14 g/dL	13.5-17.5 g/dL
WBC	8 X10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
ESR	8 1st hour	< 10 1st hour
Anti-TPO	negative	

Which of the following tests would not harmonize with the diagnosis?

- ☐ Depressed TSH
- ☐ Radioactive iodine uptake decreased
- ☒ Elevated T3
- ☐ Elevated T4
- ☐ Increased Thyroglobulin level

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- ☐ Depressed TSH
- ☐ Radioactive iodine uptake decreased
- ☒ Elevated T3
- ☐ Elevated T4
- ☐ Increased Thyroglobulin level

Description

This patient is complaining of Thyrotoxicosis factitia which is thyrotoxicosis caused by the ingestion of exogenous thyroid hormone especially due to her job. Patient presents with hyperthyroidism.

Subacute thyroiditis is excluded due to normal ESR and prolonged course.

Thyroglobulin level is decreased unlike thyroiditis and other causes of hyperthyroidism.

Question 9 of 191

Question Difficulty:

Average

Mr. X is suffering from excessive sweating, and he noticed increased prominence of his jaw. Last year he was diagnosed with type-2 diabetes and recently he has been operated on for carpal tunnel syndrome. Investigations show:

Hemoglobin	15 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	$9 \times 10^9 /L$	(4.0-11.0 $\times 10^9 /L$)
Fasting glucose	9 mmol/l	(3-6 mmol/l)

What is the definite test to confirm the diagnosis?

- ☐ Growth hormone
- ☒ Insulin-like growth factor 1
- ☐ Short ACTH test
- ☐ Serum prolactin
- ☐ Oral glucose tolerance test

Description

- ☐ Growth hormone
- ☒ Insulin-like growth factor 1
- ☐ Short ACTH test
- ☐ Serum prolactin
- ☐ Oral glucose tolerance test

Description

This patient has feature of acromegaly. Oral glucose tolerance test is diagnostic. It shows failure in suppression of GH.

Growth hormone (GH) is not diagnostic as its levels vary during the day. Elevated IGF-1 values indicates GH excess (not specific). MRI shows a pituitary tumor in 90% of patients. Prolactin is elevated in 30% of cases and not specific.

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Question 10 of 191

Question Difficulty:

Easy

Mr. X was admitted to the ED due to coma. He has recent history of gastroenteritis and diarrhea. He has a history of type 2 diabetes.

Examination shows BMI 31, BP is 100/65 mmHg, pulse is 95 and regular. Investigations show:

Serum creatinine	125 mmol/L	(53-106 mmol/L)
Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	3.8 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	16 mmol/L	(22-28 mmol/L)
Anion gap	18 mmol/l	(8-16 mmol/l)
pH	7.35	(7.35-7.45)
Random glucose	42 mmol/l	

What is the most likely diagnosis?

- ☐ Diabetic ketoacidosis
- ☒ Hyperosmolar hyperglycemic state
- ☐ Lactic acidosis
- ☐ Cerebral infarction
- ☐ Acute renal failure

Description

Hyperosmolar hyperglycemic state (HHS) is a serious metabolic derangement that occurs in patients with diabetes mellitus. HHS most commonly occurs in patients with type 2 DM.

Infection and dehydration are the most common precipitating factors.

ADA diagnostic criteria include:

- Plasma glucose level of 33 mmol/dL or greater
- Effective serum osmolality of 320 mOsm/kg or greater
- Profound dehydration, up to an average of 9L
- Serum pH greater than 7.30
- Bicarbonate concentration greater than 15 mEq/L
- Small ketonuria and absent-to-low ketonemia

Question 10 of 191

Question Difficulty:

Easy

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Question 11 of 191

Question Difficulty:

Average

8 years girl is complaining of recurrent renal calculi. He has a family history of similar condition. Serial investigations show:

Serum calcium	2.4 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	0.9 mmol/L	(0.81 - 1.45 mmol/L)
PTH	2.8 pmol/l	0.9-5.4 pmol/l
Urinary calcium	621 mg/24h	25-300 mg/24h
Urinary phosphate	40 mmol/24h	13-42 mmol/24h

What is the most likely diagnosis?

- ☐ Secondary hyperparathyroidism
- ☒ Idiopathic hypercalciuria
- ☐ Milk-alkali Syndrome
- ☐ Primary hyperparathyroidism
- ☐ Tertiary hyperparathyroidism

Description

Idiopathic hypercalciuria is an autosomal-dominant disorder occurs due to excessive gastrointestinal absorption of dietary calcium and a defect in renal tubular calcium absorption causing hypercalciuria (renal stones) without hypercalcaemia.

CHECK ANSWER

END SESSION

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Session Statistics

Answered: 10

Correct: 2

Incorrect: 8

Average Score: 20 %

Question 12 of 191

Question Difficulty:

Hard

Mrs. X is complaining of with weight gain 6. She had Graves' disease 3 years ago and was managed by repeated radio iodine doses and continued by carbimazole since then.

Investigation shows:

TSH	0.3U/l	(0.5-4.5 U/l)
Free T4	20 pmol/L	10 - 23 pmol/L
Free T3	6.6 pmol/L	3.5 - 6.5 pmol/L

What is the management of choice?

- ☒ Repeat radioactive iodine
- ☐ Switch to block-and-replace regimen
- ☒ Thyroxin replacement
- ☐ Thyroidectomy
- ☐ Propylthiouracil instead of carbimazole

What is the management of choice?

- ☒ Repeat radioactive iodine
- ☐ Switch to block-and-replace regimen
- ☒ Thyroxin replacement
- ☐ Thyroidectomy
- ☐ Propylthiouracil instead of carbimazole

Description

This patient has radioactive iodine induced hypothyroidism. Although she has normal free T4, the TSH is an indicator of hypothyroidism as well as signs of hypothyroidism. She must start thyroid hormone replacement.

CHECK ANSWER

END SESSION

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Question 13 of 191

Question Difficulty:

Hard

Mrs. X was admitted to the ED with palpitations, nausea and constipation. She was known to have metastatic breast cancer.

Investigations showed serum corrected calcium of 3.5 mmol/L (NR 2.2-2.6) and serum alkaline phosphatase 1100 IU/L. Her ECG showed atrial fibrillation.

She was started on IV saline and furosemide but her symptoms did not relieve and her serum corrected calcium was 3.2 mmol/L.

What is the management of choice?

- ☐ Radiotherapy
- ☐ IV Dexamethasone
- ☒ IV Pamidronate
- ☐ Low calcium diet
- ☐ Oral thiazide diuretic

Description

This lady has malignancy-associated hypercalcaemia. Serum calcium levels are usually above 3 mmol/L.

Hydration and forced calciuresis by 0.9 normal saline and loop diuretics is the management of choice for emergency situations. Bisphosphonate is used as adjuvant to inhibit bone resorption and formation, thus reducing bone turnover and hypercalcaemia.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 12

✓ Correct: 3

✗ Incorrect: 9

Average Score: 25 %

Question 14 of 191

Question Difficulty:

Hard

HGV driver Mr. X is reviewed for his last year diagnosed type 2 diabetes mellitus. Following weight loss and metformin his HbA1c has decreased from 8.8% to 8.4%.

What is the most suitable next step in management?

- ☐ Stop metformin for a period
- ☐ Add pioglitazone
- ☒ Add exenatide
- ☐ Add gliclazide
- ☐ Make no changes to management

Description

Pioglitazone is the best option here as it would not put him at risk of hypoglycaemia, which obviously could be dangerous given his job.

The NICE guidelines would also support the use of a DPP-4 inhibitor (sitagliptin or vildagliptin) in this situation where the risk of hypoglycaemia must be avoided.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 13

✓ Correct 4

✗ Incorrect 9

Average Score: 30.77 %

Question 15 of 191

Question Difficulty:

Easy

40 years Mrs. X was complaining of missing a couple of menses, but pregnancy testing is consistently negative. She is obese and there is facial hirsutism. Genital examination reveals clitoromegaly. Investigations show:

LH	12 IU/L	1-20 IU/L
FSH	9 IU/L	1-20 IU/L
Serum prolactin	45 ng/L	2-29 ng/mL
Testosterone	26 nmol/l	< 2.5 nmol/l
TSH	2.6 U/l	(0.5-4.5 U/l)
Fasting glucose	5.4 mmol/L	3.5-5.5 mmol/L

What is the most likely diagnosis?

- ☐ Type-2 diabetes
- ☒ Androgen-secreting tumor
- ☐ Hyperprolactinemia
- ☐ Cushing disease
- ☒ Polycystic ovarian syndrome

Description

This lady has manifestations of polycystic ovarian syndrome but very high serum testosterone and clitoromegaly (sign of high androgen levels) would point to androgen-secreting tumor.

CHECK ANSWER

END SESSION

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Question 16 of 191

Question Difficulty: **Hard**

Mr. X is complaining of cachexia and weight loss for 3 months. Examination of the neck reveals hard irregular nodule. Investigations show:

TSH	0.2 U/l	(0.5-4.5 U/l)
Free T4	23 pmol/L	10 - 23 pmol/L
Free T3	4 pmol/L	3.5 - 6.5 pmol/L
ESR	88 1st hour	

Radioactive iodine shows cold thyroid nodule.

What is the most likely diagnosis?

- ☒ Thyroid lymphoma
- ☐ Follicular thyroid cancer
- ☐ Papillary thyroid cancer
- ☐ Medullary thyroid cancer
- ☐ Toxic solitary nodule

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- ☐ Follicular thyroid cancer
- ☐ Papillary thyroid cancer
- ☐ Medullary thyroid cancer
- ☐ Toxic solitary nodule

Description

Cold painless nodule and highly elevated ESR are features of thyroid cancer. Follicular thyroid cancer secretes T4 to cause thyrotoxicosis.

Question 17 of 191

Question Difficulty:

Easy

Mr. X is complaining of fatigue and polydipsia. His random glucose shows 12.3 mmol/L and fasting serum glucose was 8.0 mmol/L. His HbA1c level was 7.5% (58 mmol/mol).

What is the management of choice?

- ☒ Sulfonylurea
- ☐ Sitagliptin
- ☒ Metformin
- ☐ Canagliflozin
- ☐ Pioglitazone

Description

This patient follows the ADA criteria for the diagnosis of diabetes as fasting plasma glucose is of 7.0 mmol/L or higher and HbA1c level of 6.5%.

NICE suggests starting with a single drug is of choice. Standard-release metformin is the initial drug treatment for adults with type 2 diabetes. Dipeptidyl peptidase-4 (DPP-4) inhibitor, pioglitazone or sulfonylurea are alternatives.

Sodium-glucose transport (SGLT-2) inhibitors (canagliflozin, dapagliflozin or empagliflozin) are not licensed by NICE to be used as monotherapy

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 16

Correct: 4

Incorrect: 12

Average Score: 25 %

Question 18 of 191

Question Difficulty:

Easy

Mr. X is complaining of hypertension which is difficult to treat. He has noted that his face has become more rounded over the years and increasing trouble with both acne and hirsutism. He has a recent history of hemiparesis. Investigations show:

Serum sodium	142 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.56	(7.35-7.45)
24 H urinary cortisol	450 mmol/24 h	250 mmol/24 h
Midnight plasma ACTH	33 pmol/L	1.55-11.1 pmol/L

Which of the following would cause his symptoms?

- ☐ Adrenal adenoma
- ☐ Adrenal hyperplasia
- ☐ Conn syndrome
- ☐ Pituitary adenoma
- ☒ Ectopic ACTH production

Description

This patient has ACTH dependent Cushing syndrome with overweight, hypokalemic alkalosis. The recent history of hemiparesis points to ectopic ACTH production due to paraneoplastic manifestation of lung small cell cancer. Benign pituitary adenoma causes 70% of cases.

CHECK ANSWER

END SESSION

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Question 19 of 191

Question Difficulty:

Hard

55 Mrs. X is complaining of a palpable mass in the upper outer quadrant of the right breast. Examination shows palpable axillary lymph nodes. A biopsy is performed and the breast lesion shows advanced adenocarcinoma with positive estrogen receptors. What is the management of choice?

- ☐ Radiation therapy with anastrozole
- ☒ Chemotherapy
- ☐ Radical mastectomy with tamoxifen
- ☐ Chemotherapy with anastrozole
- ☐ Radical mastectomy

Description

Surgery and radiation therapy is of choice for early and locally advanced breast cancer. Chemotherapy is of choice for advanced breast cancer.

Endocrine therapy includes aromatase inhibitors (Anastrozole) for postmenopausal women or selective estrogen receptor modulators (tamoxifen) for premenopausal women are indicated as adjuvant therapy only for PR positive cancer.

CHECK ANSWER

END SESSION

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Session Statistics

📊 Answered 18

✓ Correct 5

✗ Incorrect 13

📊 Average Score: 27.78 %

Question 20 of 191

Question Difficulty:

Hard

Mrs. X with a history of Graves' disease comes to the Emergency department complaining of bilateral blurring of vision. Examination reveals bilateral thyroid eye disease with marked proptosis.

She has a medical history of renal failure and osteoporosis.

What is the management of choice?

- ☒ Retrobulbar irradiation
- ☐ Artificial tears
- ☐ Surgical orbital decompression
- ☐ Eye patches
- ☒ Low-dose dexamethasone

Description

For severe ophthalmopathy, high-dose glucocorticoids is used as first line to decrease inflammation in the eye muscles and orbital tissue, retrobulbar irradiation is alternative to steroids and should be used as steroids are contraindicate due to osteoporosis. Surgical orbital decompression is indicated to relieve severe pressure on the optic nerve.

Artificial tears, ointments, sunglasses and eye patches are indicated in mild ophthalmopathy.

CHECK ANSWER

END SESSION

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Session Statistics

Answered 19

✓ Correct 5

✗ Incorrect 14

✓ Average Score: 26.32 %

Question 21 of 191

Question Difficulty:

Hard

Mr. X with a history of hyponatremia is complaining of increasing thirst and going to the bathroom frequently. Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Serum sodium	150 mmol/L	(136-145 mmol/L)
Serum potassium	3.6 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)
Plasma osmolality	311 mmol/kg	(275-295 mmol/kg)
Urine osmolality	360 mmol/kg	(500-800 mmol/kg)

What is the most likely diagnosis?

- ☐ Syndrome of inappropriate ADH secretion
- ☐ Cranial diabetes insipidus
- ☐ Psychogenic polydipsia
- ☐ Chronic reflux nephropathy
- ☒ Nephrogenic diabetes insipidus

Description

This patient has nephrogenic diabetes insipidus due to use of lithium for his disease. Diabetes insipidus is an uncommon disease characterized by polydipsia and polyuria of large quantities of urine with high plasma osmolality, low urine osmolality and hypernatremia.

Psychogenic polydipsia is a psychiatric disturbance that causes a fall in plasma sodium and osmolality and a concomitant low urine osmolality.

CHECK ANSWER

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Question 22 of 191

Question Difficulty:

Easy

8 years old boy was investigated due to short stature, developmental delay and low IQ. He has a history of prolongation of the QT interval.

Examination reveals he is obese with rounded face and squint. His fingers were short especially 4th and 5th fingers. Investigations show:

Serum calcium	1.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	1.6 mmol/L	(0.81 - 1.45 mmol/L)
PTH	23.5 pmol/l	0.9-5.4 pmol/l
TSH	12.3 U/l	(0.5-4.5 U/l)
Free T4	2 pmol/L	10 - 23 pmol/L

What is the most likely diagnosis?

- ☐ Celiac disease
- ☒ Vitamin D resistant osteomalacia
- ☐ Hypothyroidism
- ☐ Primary hypoadrenalism
- ☐ Pseudohypoparathyroidism

Description

Pseudohypoparathyroidism (PHP) is insensitivity to PTH in tissues due to defect in Gsa protein, it is characterized by hypocalcemia, hyperphosphatemia, increased parathyroid hormone (PTH).

Pseudohypoparathyroidism is associated with hypothyroidism due to resistance to TSH. Features include:

- Short stature
- Squint
- Obesity
- Developmental delay
- Round face
- Low IQ
- Brachymetacarpals (especially 4th and 5th)
- Brachymetatarsals
- Soft tissue calcification
- Prolongation of the QT interval

Question 23 of 191

Question Difficulty:

Hard

Mrs. X was admitted to the ED with fatigue, nausea and constipation. Her family reported she has been depressed over the last few weeks. Examination shows generalized abdominal tenderness and a scar noted on the left breast from a previous lumpectomy for breast carcinoma. Investigations showed serum corrected calcium of 3.5 mmol/L (NR 2.2-2.6) and serum alkaline phosphatase 1100 IU/L.

What is the management of choice?

- ☒ IV hydration with normal saline and furosemide
- ☐ IV hydration with normal saline and subcutaneous calcitonin
- ☐ IV hydration with normal saline
- ☒ IV hydration with normal saline and oral bisphosphonate
- ☐ IV hydration with normal saline and corticosteroids

Description

This lady has malignancy-associated hypercalcaemia. Serum calcium levels are usually above 3 mmol/L.

Hydration and forced calciuresis by 0.9 normal saline and loop diuretics is the management of choice for emergency situations.

Bisphosphonate is used as adjuvant to inhibit bone resorption and formation, thus reducing bone turnover and hypercalcaemia

CHECK ANSWER

END SESSION

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Session Statistics

📊 Answered 22

✓ Correct 6

✗ Incorrect 16

📈 Average Score: 27.27 %



Question 24 of 191

Question Difficulty:

Easy

Mr. X is suffering from weight gain, cold intolerance for 3 months. He has a recent history of diagnosed sleep apnea. Examinations reveal dry skin, loss of body hair and lower limb edema. Investigations are normal except elevated serum cholesterol.

Which of the following investigations should be ordered?

- ☒ Lifestyle advice and reassurance
- ☐ Fasting blood glucose
- ☐ Screening of family members for hypercholesterolemia
- ☐ Echocardiography
- ☐ TSH

Description

This patient shows features of hypothyroidism. Features of hypothyroidism are:

- Fatigue, loss of energy, lethargy
- Weight gain
- Cold intolerance and hypothermia
- Dry skin
- Depression
- Constipation
- Loss of scalp hair, axillary hair, pubic hair, or a combination
- Macroglossia
- Bradycardia
- Non-pitting edema

CHECK ANSWER

END SESSION

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Question 25 of 191

Question Difficulty:

Average

Mr. X was complaining of recurrent bluish-red rash on his neck, abdominal pain and watery diarrhea. He has facial telangiectasia.

Examination shows elevated JVP. There is widespread polyphonic expiratory wheeze and pansystolic murmur on chest auscultation. There is moderate hepatomegaly. Investigations show:

Hemoglobin	15 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	$10.6 \times 10^9/L$	($4.0-11.0 \times 10^9/L$)
Platelets	210 million/mm ³	(150-450 million/mm ³)
Serum creatinine	102 mmol/L	(53-106 mmol/L)
Bilirubin	14 μ mol/L	(2-17 μ mol/L)
ALT	150 U/L	(8-20 U/L)
24 hour urine HAA	750 μ mol	<70 μ mol

Excess of which neuropeptide is likely the cause of his symptoms?

- ☐ Gastrin
- ☐ Cholecystokinin
- ☒ Serotonin
- ☐ Somatostatin
- ☐ Vasoactive intestinal polypeptide

Description

This patient has malignant carcinoid syndrome. It is the constellation of symptoms typically exhibited by patients with metastases from carcinoid tumors which cause excessive levels of serotonin.

It is manifested by flushing of the face, severe diarrhea, asthma attacks and hypotension. Tricuspid regurgitation and pulmonary stenosis are less common. Liver metastasis and cirrhosis are common.

CHECK ANSWER

END SESSION

NEXT

Question 26 of 191

Question Difficulty:

Easy

Mrs. X is complaining of palpitations, weight loss and heat intolerance for 9 weeks. She also noticed 'fullness' of her neck and puffiness of her eyes. Examination reveals smooth non-tender goiter.

ECG shows atrial fibrillation. Investigation shows:

TSH	0.05UI	(0.5-4.5 UI)
Free T4	36 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L

What is the management of choice?

- ☐ Block-and-replace regimen
- ☐ Thyroid hormone replacement
- ☐ Propylthiouracil
- ☒ Radioactive iodine
- ☐ Carbimazole

What is the management of choice?

- ☐ Block-and-replace regimen
- ☐ Thyroid hormone replacement
- ☐ Propylthiouracil
- ☒ Radioactive iodine
- ☐ Carbimazole

Description

This lady has hyperthyroidism with exophthalmos which is specific for diagnosis of Graves' disease. Antithyroid drugs (carbimazole with propylthiouracil as alternative) are first lines. Block-and-replace regimen is 2nd line. Radioactive iodine is indicated for enlarged gland with signs of thyrotoxicosis.

Question 27 of 191

Question Difficulty:

Easy

5 years old boy is complaining of thirst and lethargy. He has a dizygotic twin diagnosed with diabetes 2 years ago. His fasting plasma glucose is 8.0 mmol/L.

Which of the following would confirm diagnosis?

- ☒ Islet-cell antibodies
- ☐ Urinary glucose
- ☒ Pancreatic biopsy
- ☐ Hemoglobin A1c
- ☐ 2-hour plasma glucose

Description

This patient has type 1 diabetes. It is associated with autoimmune destruction of the beta cells in the pancreas causing inability to produce insulin. Positive islet-cell antibodies is present in 85% of cases.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

 Answered 26

✓ Correct 6

✗ Incorrect 20

 Average Score: 23.08 %

Question 28 of 191

Question Difficulty:

Hard

28 weeks pregnant Mrs. X was referred after discovered glycosuria during a routine check-up. She has a family history of a mother with Type-2 diabetes.

Examination shows a BMI of 30 and BP of 110/72 mmHg. Investigations show fasting plasma glucose of 6.5 mmol/l and 2 h glucose of 8.4 mmol/l.

What is the most likely diagnosis?

- ☒ Gestational diabetes
- ☐ Type 1 diabetes
- ☐ Impaired fasting glucose
- ☐ Type 2 diabetes
- ☐ Impaired oral tolerance test

Description

This lady has gestational diabetes. It is a condition in which women without previously diagnosed diabetes exhibit high blood glucose levels during pregnancy. It affects 3-10% of pregnancies.

Fasting blood glucose level > 5.6 mmol/l and/or 2-h level of 7.8 mmol/l is diagnostic.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered 27

✓ Correct 6

✗ Incorrect 21

📊 Average Score: 22.22 %

Question 29 of 191

Question Difficulty:

Hard

Mr. X is complaining of dizziness. His GP reported a serum glucose of 10 mmol/l. Examination showed a BMI of 32 and blood pressure of 160/100 mmHg.

His investigations show fasting plasma glucose of 6.5 mmol/l and 2 h glucose of 10.5 mmol/l.

What is the most likely diagnosis?

- ☒ Type 2 diabetes
- ☐ Type 1 diabetes
- ☐ LAB error
- ☐ Impaired oral tolerance test
- ☐ Impaired fasting glucose

Description

Impaired glucose tolerance (IGT) is defined as a fasting plasma glucose of 6.1-7.0 mmol/l and a plasma glucose of between 7.8 and 11.1 mmol/l when measured two hours after 75g oral glucose tolerance test.

It has a risk of progression to diabetes of 20-30% within 5 years.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered: 28

✓ Correct: 7

✗ Incorrect: 21

📊 Average Score: 25 %

Question 29 of 191

Question Difficulty:

Hard

Mr. X is complaining of dizziness. His GP reported a serum glucose of 10 mmol/l. Examination showed a BMI of 32 and blood pressure of 160/100 mmHg.

His investigations show fasting plasma glucose of 6.5 mmol/l and 2 h glucose of 10.5 mmol/l.

What is the most likely diagnosis?

- ☒ Type 2 diabetes
- ☐ Type 1 diabetes
- ☐ LAB error
- ☐ Impaired oral tolerance test
- ☐ Impaired fasting glucose

Description

Impaired glucose tolerance (IGT) is defined as a fasting plasma glucose of 6.1-7.0 mmol/l and a plasma glucose of between 7.8 and 11.1 mmol/l when measured two hours after 75g oral glucose tolerance test.

It has a risk of progression to diabetes of 20-30% within 5 years.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered: 28

✓ Correct: 7

✗ Incorrect: 21

📊 Average Score: 25 %

Question 30 of 191

Question Difficulty:

Hard

Mr. X is complaining of exertional dyspnea and chest pain for 2 months. He has a 6 months history of abdominal pain and vomiting.

Examination revealed pallor, patches of vitiligo on the arms. Investigations show:

Leucocyte count	10 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Platelets	280 million/mm ³	(150-450 million/mm ³)
Erythrocyte count	4.1 million/mm ³	Male: 4.3-5.9 million/mm ³
Hemoglobin	9.2 g/dL	Male: 13.5-17.5 g/dL
Mean corpuscular volume	105 fl	80-100 fl
Mean corpuscular hemoglobin	22 pg/cell	25.4-34.6 pg/cell

Which autoantibody would be most diagnostic for the underlying disease?

- ☒ Anti-intrinsic factor
- ☐ Antiglutamic acid decarboxylase
- ☐ Antitissue transglutaminase
- ☐ Antigastrie parietal cell
- ☒ Antithyroid peroxidase

Description

This patient has pernicious anemia. It is caused by autoimmune destruction of gastric parietal cells leading to failure in intrinsic factor production causing vitamin B12 deficiency.

CHECK ANSWER

END SESSION

NEXT

Question 31 of 191

Question Difficulty:

Easy

Mr. X is complaining of cachexia and weight loss for 3 months. Examination of the neck reveals painless, palpable, solitary, hard and fixed mass. Investigations show:

TSH	3 U/I	(0.5-4.5 U/I)
Free T4	13 pmol/L	10 - 23 pmol/L
Free T3	4 pmol/L	3.5 - 6.5 pmol/L
ESR	96 1st hour	

Which of the following investigations would confirm diagnosis?

- ☐ Free T4
- ☐ Thyroid radioiodine imaging
- ☒ Fine needle biopsy
- ☒ Neck ultrasonography
- ☐ TSH

Which of the following investigations would confirm diagnosis?

- ☐ Free T4
- ☐ Thyroid radioiodine imaging
- ☒ Fine needle biopsy
- ☒ Neck ultrasonography
- ☐ TSH

Description

Painless, palpable, solitary, hard and fixed thyroid nodules are feature of thyroid cancer. Fine needle biopsy is diagnostic and used for phenotyping.

CHECK ANSWER

END SESSION

NEXT

Question 32 of 191

Question Difficulty:

Hard

16 years Miss X is complaining of feeling tired and lethargic for the last six months. She reported amenorrhea for the past 4 months. She has had no past medical history.

Examination shows a pale and thin girl with BMI of 16, BP of 90/60 mmHg and pulse of 60/min. There is atrophy of the breasts and loss of muscle mass. Her skin is dry, her hair is thin and there is cyanosis on her fingers. Investigations show:

AST	120 U/L	(8-20 U/L)
Serum amylase	260 U/L	(25-125 U/L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	3.0 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	34 mmol/L	(22-28 mmol/L)
Serum calcium	1.8 mmol/L	(2.1-2.8 mmol/L)
Leukocyte count	3 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Hemoglobin	9 g/dL	Female: 12.0-16.0 g/dL

Which of the following hormone levels would be expected?

Which of the following hormone levels would be expected?

☐ Decreased estrogen

☐ Decreased cortisol

☒ Increased LH

☐ Increased testosterone

☐ Increased FSH

Description

This girl is complaining of anorexia nervosa. Expected Lab findings include:

- Hypokalemia, hypocalcemia and metabolic alkalosis
- Low WBC count and normocytic normochromic anemia
- Hypoglycemia and hypercholesterolemia
- Low PTH, FSH, LH, estrogens and testosterone
- Elevated serum cortisol
- Elevated liver functions
- Increased serum amylase level

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 31

✓ Correct: 7

✗ Incorrect: 24

Average Score: 22.58

%

Question 32 of 191

Question Difficulty:

Hard

16 years Miss X is complaining of feeling tired and lethargic for the last six months. She reported amenorrhea for the past 4 months. She has had no past medical history.

Examination shows a pale and thin girl with BMI of 16, BP of 90/60 mmHg and pulse of 60/min. There is atrophy of the breasts and loss of muscle mass. Her skin is dry, her hair is thin and there is cyanosis on her fingers. Investigations show:

AST	120 U/L	(8-20 U/L)
Serum amylase	260 U/L	(25-125 U/L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	3.0 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	34 mmol/L	(22-28 mmol/L)
Serum calcium	1.8 mmol/L	(2.1-2.8 mmol/L)
Leukocyte count	3 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Hemoglobin	9 g/dL	Female: 12.0-16.0 g/dL

Which of the following hormone levels would be expected?

Which of the following hormone levels would be expected?

☐ Decreased estrogen

☐ Decreased cortisol

☒ Increased LH

☐ Increased testosterone

☐ Increased FSH

Description

This girl is complaining of anorexia nervosa. Expected Lab findings include:

- Hypokalemia, hypocalcemia and metabolic alkalosis
- Low WBC count and normocytic normochromic anemia
- Hypoglycemia and hypercholesterolemia
- Low PTH, FSH, LH, estrogens and testosterone
- Elevated serum cortisol
- Elevated liver functions
- Increased serum amylase level

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 31

✓ Correct: 7

✗ Incorrect: 24

Average Score: 22.58

%

Question 33 of 191

Question Difficulty:

Easy

10 years old boy was complaining of chronic polyuria and constipation. He had never complaint of bone demineralization or renal stones. Serial investigations show:

Serum calcium	2.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	0.9 mmol/L	(0.81 - 1.45 mmol/L)
PTH	5.8 pmol/l	0.9-5.4 pmol/l
Urinary calcium	21 mg/24h	25-300 mg/24h
Urinary phosphate	40 mmol/24h	13-42 mmol/24h

What is the most likely diagnosis?

- ☐ Milk-alkali Syndrome
- ☒ Tertiary hyperparathyroidism
- ☐ Secondary hyperparathyroidism
- ☐ Primary hyperparathyroidism
- ☐ Familial hypocalciuric hypercalcaemia

Description

Familial hypocalciuric hypercalcaemia is an autosomal dominant defect of calcium-sensing receptor in the parathyroid and kidney tissue characterized by moderate chronic hypercalcaemia and normal or moderately elevated plasma PTH concentrations.

No treatment is generally required, as bone demineralization and kidney stones (hyperparathyroidism complications) are relatively uncommon.

CHECK ANSWER

END SESSION

NEXT

Question 34 of 191

Question Difficulty:

Hard

Mr. X presents with weight gain and recurrent dizzy episodes for the past 4 months. The episodes occur on an almost daily basis and are characterized by blurred vision, sweating, headaches and palpitations.

Her GP checked a blood sugar during one of these episodes which was record as being 1.4 mmol/L.

Which of the following tests to be requested for diagnosis?

- ☒ Insulin tolerance test
- ☐ Supervised fasting
- ☐ Glucagon stimulation test
- ☐ Oral glucose tolerance test
- ☐ Early morning C-peptide levels

Description

This patient has insulinoma. It is characterized clinically by the Whipple triad:

- Presence of symptoms of hypoglycemia (about 85% of patients)
- Documented low blood glucose at the time symptoms
- Reversal of symptoms by glucose administration

Continuous endogenous insulin secretion which is not suppressed by hypoglycemia is the hallmark of an insulinoma (prolonged fasting up to 72 h). The following results should be found after prolonged fasting:

- Serum insulin levels of 10 μ U/mL or more (normal < 6 μ U/mL)
- Glucose levels of less than 2.2 mmol/L

CHECK ANSWER

END SESSION

NEXT

Question 35 of 191

Question Difficulty:

Easy

Mr. X is complaining of facial flushing, abdominal pain and watery diarrhoea. He has facial telangiectasia. He was diagnosed to have carcinoid syndrome.

He was started management with chemotherapy but he stills suffering from facial flushing.

What is the management of choice?

- ☐ Loperamide
- ☒ Ketanserin
- ☐ Cyproheptadine
- ☐ Methysergide
- ☐ Octreotide

Description

Somatostatin analogues as octreotide are indicated for controlling of symptoms as flushing and endocrine manifestations. Cyproheptadine is used to control diarrhoea.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered 34

✓ Correct 7

✗ Incorrect 27

📈 Average Score: 20.59 %

Question 36 of 191

Question Difficulty:

Easy

Mr. X is complaining of weight loss. His investigations show fasting plasma glucose of 6.5 mmol/l and 2 h glucose of 7.5 mmol/l. What is the most likely diagnosis?

- ☒ Type 2 diabetes
- ☐ LAB error
- ☐ Type 1 diabetes
- ☒ Impaired fasting glucose
- ☐ Impaired oral tolerance test

Description

Impaired fasting glucose is defined as fasting plasma glucose greater than or equal to 6.1 but less than 7.0 mmol/l with normal two hours post glucose tolerance test.

It has a risk of progression to diabetes of 50% within 10 years.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered 35

✓ Correct 7

✗ Incorrect 28

📊 Average Score: 20 %

Question 37 of 191

Question Difficulty:

Easy

Mr. X with a long history of renal failure and hemodialysis is complaining of increasing tiredness and polyuria. All examinations were free except hypertension and bradycardia. Serial investigations show:

Serum calcium	1.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	1.6 mmol/L	(0.81 - 1.45 mmol/L)
PTH	15.5 pmol/l	0.9-5.4 pmol/l

Bone densitometry shows no increased bone resorption.

What is the management of choice?

- ☐ Calcium acetate
- ☒ Cinacalcet
- ☐ Sevelamer
- ☒ Atrialcicidol
- ☐ Calcium carbonate

What is the management of choice?

- ☐ Calcium acetate
- ☒ Cinacalcet
- ☐ Sevelamer
- ☒ Atrialcicidol
- ☐ Calcium carbonate

Description

This patient has hypocalcemia and hyperparathyroidism which are features of secondary hyperparathyroidism. Correcting vitamin D deficiency by atrialcicidol is the first line due to his renal failure. Decrease parathyroid hormone (PTH) production by cinacalcet if hyperparathyroidism affects bone density.

Phosphate binders as calcium carbonate, calcium acetate and sevelamer with dietary phosphate restriction are second line management.



Question 38 of 191

Question Difficulty:

Hard

18 years Miss X is complaining of headache and fatigue. She reported amenorrhea for the past 4 months. She has had no past medical history.

Examination shows BMI of 16, BP of 110/70 mmHg and pulse of 60/min. there is atrophy of the breasts and loss of muscle mass.

Investigations show:

AST	120 U/L	(8-20 U/L)
Serum amylase	260 U/L	(25-125 U/L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	3.0 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	34 mmol/L	(22-28 mmol/L)
Serum calcium	1.8 mmol/L	(2.1-2.8 mmol/L)
Leukocyte count	3 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Hemoglobin	9 g/dL	Female: 12.0-16.0 g/dL
LH	0.5 IU/L	Females 1-20 IU/L
LH	0.5 IU/L	Females 1-20 IU/L

What is the most likely diagnosis?

- ☒ Anorexia nervosa
- ☐ Pheochromocytoma
- ☐ Addison disease
- ☐ Cushing syndrome
- ☐ Conn syndrome

Description

Anorexia nervosa is a potentially life-threatening eating disorder characterized by the inability to maintain a minimally normal weight in attempts to prevent weight gain due to abnormally perceived disturbance in the body weight and shape. Signs and symptoms include:

- Dry skin
- Lanugo body hair
- Acrocyanosis (persistent blue discoloration of the extremities)
- Atrophy of the breasts
- Hypotension
- Amenorrhea
- Parotid and submandibular glands swelling
- Peripheral edema
- Thinning hair
- Hypothermia
- Loss of muscle mass

Lab findings include:

- Hypokalemia, hypocalcemia and metabolic alkalosis
- Low WBC count and normocytic normochromic anemia
- Hypoglycemia and hypercholesterolemia
- Low PTH, FSH, LH, estrogens and testosterone
- Elevated serum cortisol
- Elevated liver functions
- Increased serum amylase level

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 37

Correct: 7

Incorrect: 30

Average Score: 18.92 %

Question 39 of 191

Question Difficulty:

Easy

8 years old boy was investigated for developmental delay and low IQ. Examination shows he has 4th and 5th short fingers. Investigations show:

Serum calcium	1.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	1.6 mmol/L	(0.81 - 1.45 mmol/L)
PTH	23.5 pmol/l	0.9-5.4 pmol/l

What is the management of choice?

- ☐ Cinacalcet
- ☒ Magnesium sulphate
- ☐ Calcium and vitamin D
- ☐ Calcitonin
- ☐ Sevelamer

Description

- ☐ Cinacalcet
- ☒ Magnesium sulphate
- ☐ Calcium and vitamin D
- ☐ Calcitonin
- ☐ Sevelamer

Description

This patient has pseudohypoparathyroidism. It is insensitivity to PTH in tissues due to defect in Gsa protein, it is characterized by hypocalcemia, hyperphosphatemia, increased parathyroid hormone (PTH). Features include:

- Short stature
- Squint
- Obesity
- Developmental delay
- Round face
- Low IQ
- Brachymetacarpals (especially 4th and 5th)
- Brachymetatarsals
- Soft tissue calcification
- Prolongation of the QT interval

Management includes Calcium and vitamin D supplementation or parathyroidectomy.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 38

✓ Correct: 7

✗ Incorrect: 31

Average Score: 18.42
%

Question 40 of 191

Question Difficulty:

Hard

Mr. X with long-term therapy with lithium for depression is complaining of polyuria and polydipsia. Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Serum sodium	150 mmol/L	(136-145 mmol/L)
Serum potassium	3.6 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)
Plasma osmolality	305 mmol/kg	(275-295 mmol/kg)
Urine osmolality	290 mmol/kg	(500-800 mmol/kg)
Post DDAVP Urine osmolality	340 mmol/kg	(500-800 mmol/kg)
Fasting glucose	5 mmol/l	(3-6 mmol/l)

What is the management of choice?

- ☐ Demeclocycline
- ☐ Desmopressin
- ☒ Amloride
- ☐ Water restriction
- ☐ Hypotonic saline

Description

This patient has nephrogenic diabetes insipidus. Diabetes insipidus is an uncommon disease characterized by polydipsia and polyuria of large quantities of urine with high plasma osmolality, low urine osmolality and hyponatremia.

In vasopressin challenge test, In nephrogenic diabetes insipidus there is no or little response (< 45%) in urine osmolality following the administration of DDAVP.

Nephrogenic diabetes insipidus is managed by combined indomethacin with hydrochlorothiazide or amloride.

CHECK ANSWER

END SESSION

NEXT

Question 41 of 191

Question Difficulty:

Easy

Mr. X who was admitted with cerebral was reported to have anuria and myoclonic jerks for 2 days. Examination reveals a BP of 110/70 mmHg. Neurological examination reveals generalized muscle weakness.

Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Serum sodium	130 mmol/L	(136-145 mmol/L)
Serum potassium	3.6 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)
Plasma osmolality	260 mmol/kg	(275-295 mmol/kg)
Urine osmolality	950 mmol/kg	(500-800 mmol/kg)

What is the most likely diagnosis?

- ☐ Hypovolaemia
- ☒ Addisonian crisis
- ☐ Syndrome of inappropriate antidiuretic hormone
- ☐ Cranial diabetes insipidus
- ☐ Fluid overload

Description

SIADH (syndrome of inappropriate antidiuretic hormone) is excessive release of antidiuretic hormone from the posterior pituitary gland or another source which results in dilutional hyponatremia.

It is manifested by generalized muscle weakness, myoclonus, hyperreflexia, confusion, delirium and seizures. Investigations show hyponatremia with low plasma osmolality, high urine osmolality.

CHECK ANSWER

END SESSION

NEXT

Mr. X is complaining of drinking vast amounts of water and getting up many times in the night to urinate. Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Serum sodium	150 mmol/L	(136-145 mmol/L)
Serum potassium	3.6 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)
Plasma osmolality	305 mmol/kg	(275-295 mmol/kg)
Urine osmolality	290 mmol/kg	(500-800 mmol/kg)
Fasting glucose	5 mmol/l	(3-6 mmol/l)

A water deprivation test is performed with the following results after DDAVP administration:

Plasma osmolality	315 mmol/kg	(275-295 mmol/kg)
Urine osmolality	340 mmol/kg	(500-800 mmol/kg)

What is the most likely diagnosis?

Plasma osmolality	315 mmol/kg	(275-295 mmol/kg)
Urine osmolality	340 mmol/kg	(500-800 mmol/kg)

What is the most likely diagnosis?

☐ Psychogenic polydipsia

☒ Nephrogenic diabetes insipidus

☒ Pseudo-Hypoparathyroidism

☐ Cranial diabetes insipidus

☐ Primary hyperparathyroidism

Description

This patient has diabetes insipidus. Diabetes insipidus is an uncommon disease characterized by polydipsia and polyuria of large quantities of urine with high plasma osmolality, low urine osmolality and hyponatremia.

In vasopressin challenge test, cranial diabetes insipidus causes a dramatic improvement in urine osmolality (> 50%) following the administration of DDAVP. In nephrogenic diabetes insipidus there is no or little response (< 45%) in urine osmolality.

Question 43 of 191

Question Difficulty:

Hard

Mr. X was discovered to have abnormal thyroid functions after he was admitted to the intensive care unit after a car accident. His thyroid functions tests shows:

TSH	0.3 U/l	(0.5-4.5 U/l)
Free T4	7 pmol/L	10 - 23 pmol/L
Free T3	3 pmol/L	3.5 - 6.5 pmol/L

What is the most likely diagnosis?

- ☐ Hashimoto thyroiditis
- ☒ Subclinical hyperthyroidism
- ☐ Euthyroid sick syndrome
- ☐ Riedel thyroiditis
- ☐ Subclinical hypothyroidism

Description

- ☐ Hashimoto thyroiditis
- ☒ Subclinical hyperthyroidism
- ☐ Euthyroid sick syndrome
- ☐ Riedel thyroiditis
- ☐ Subclinical hypothyroidism

Description

Euthyroid sick syndrome (non-thyroidal illness syndrome) can are abnormal findings on thyroid function tests that occur without preexisting hypothalamic-pituitary and thyroid gland dysfunction.

The most prominent alterations are low serum T3 "low T3 syndrome". TSH, T4 and free T4 are minimally affected.

CHECK ANSWER

END SESSION

NEXT

Question 44 of 191

Question Difficulty:

Hard

Mr. X is complaining of fatigue and polydipsia. His random glucose shows 12.3 mmol/L, fasting serum glucose was 8.0 mmol/L and his urine shows + protein. Other investigations show:

Serum creatinine	128 mmol/L	(53-106 mmol/L)
Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	3.8 mmol/L	(3.5-5.0 mmol/L)
HbA1c	61 mmol/mol (7.8%)	

What is the management of choice?

- ☒ Gliclazide
- ☐ Metformin
- ☒ Pioglitazone
- ☐ Chlorpropamide
- ☐ Vildagliptin

Description

This patient has type 2 diabetes mellitus with elevated renal functions. Gliclazide is a sulphonylurea can be used in mild to moderate renal failure. Pioglitazone is associated with fluid retention and is contraindicated. Chlorpropamide, a sulphonylurea, is rarely used now and is excreted by the kidney.

Metformin is causes lactic acidosis and it is contraindicated in patients with renal, hepatic or cardiac failure.

CHECK ANSWER

END SESSION

NEXT

Question 45 of 191

Question Difficulty:

Easy

Mr. X is complaining of progressive weight gain and light headedness for 6 months. He reported he has gained 10 kg in weight in the past 3 months. His light headedness tends to be worse in the morning and with exercise and usually associated by sweating and double vision.

He reported he checked his serum glucose during an episode which was 1.5 mmol/l. The LAB serum glucose was 4.2 mmol/l.

What is the most likely diagnosis?

- ☒ Hashimoto thyroiditis
- ☐ Diabetes mellitus
- ☐ Pheochromocytoma
- ☐ Insulinoma
- ☐ Bronchial carcinoid

Description

Insulinoma is a neuroendocrine tumor derived mainly from pancreatic islets of Langerhans cells. It is the most common cause of hypoglycemia. It is characterized clinically by the Whipple triad:

- Presence of symptoms of hypoglycemia (about 85% of patients)
- Documented low blood glucose at the time symptoms
- Reversal of symptoms by glucose administration

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 44

✓ Correct: 8

✗ Incorrect: 36

Average Score: 18.18 %

Question 46 of 191

Question Difficulty:

Easy

Mr. X is suffering from weight gain, cold intolerance for 3 months. He has a recent history of diagnosed sleep apnea. Examinations reveal dry skin, loss of body hair and lower limb edema.

Investigations are normal except elevated serum cholesterol. Thyroid function testing was ordered and showed:

TSH	0.3 U/l	(0.5-4.5 U/l)
Free T4	2 pmol/L	10 - 23 pmol/L
Free T3	1.5 pmol/L	3.5 - 6.5 pmol/L
Total T4	40 nmol/L	58 - 161 nmol/L
Total T3	0.6 nmol/L	0.9-2.8 nmol/L

What is the most likely diagnosis?

- ☐ Anterior hypopituitarism
- ☒ Hashimoto thyroiditis
- ☐ Primary atrophic hypothyroidism
- ☐ Dietary iodine deficiency
- ☐ Posterior hypopituitarism

Description

This patient has hypothyroidism. Of all the causes of hypothyroidism, anterior pituitary failure is the only cause of low TSH.

CHECK ANSWER

END SESSION

NEXT

Question 46 of 191

Question Difficulty:

Easy

Mr. X is suffering from weight gain, cold intolerance for 3 months. He has a recent history of diagnosed sleep apnea. Examinations reveal dry skin, loss of body hair and lower limb edema.

Investigations are normal except elevated serum cholesterol. Thyroid function testing was ordered and showed:

TSH	0.3 U/l	(0.5-4.5 U/l)
Free T4	2 pmol/L	10 - 23 pmol/L
Free T3	1.5 pmol/L	3.5 - 6.5 pmol/L
Total T4	40 nmol/L	58 - 161 nmol/L
Total T3	0.6 nmol/L	0.9-2.8 nmol/L

What is the most likely diagnosis?

- ☐ Anterior hypopituitarism
- ☒ Hashimoto thyroiditis
- ☐ Primary atrophic hypothyroidism
- ☐ Dietary iodine deficiency
- ☐ Posterior hypopituitarism

Description

This patient has hypothyroidism. Of all the causes of hypothyroidism, anterior pituitary failure is the only cause of low TSH.

CHECK ANSWER

END SESSION

NEXT

Question 47 of 191

Question Difficulty:

Hard

Mr. X is complaining of palpitations at rest. He has past history of atrial fibrillation and on management with amiodarone.

Examination shows BP is 135/75 mmHg, pulse is 90/min. Thyroid gland examination reveals no goiter. Investigations show:

TSH	0.2 U/l	(0.5-4.5 U/l)
Free T4	29 pmol/L	10 - 23 pmol/L
Free T3	8 pmol/L	3.5 - 6.5 pmol/L
IL 6	elevated	
Anti-TPO	negative	

Color flow doppler ultrasound of the thyroid gland shows decreased blood flow.

What is the most likely diagnosis?

- ☐ Amiodarone-induced hypothyroidism
- ☐ Subacute thyroiditis
- ☐ Graves' disease
- ☒ Amiodarone-induced thyrotoxicosis type 2
- ☐ Amiodarone-induced thyrotoxicosis type 1

Description

AIT type 1 features

- Goiter is present
- Normal thyroid uptake scan
- Positive thyroid autoantibodies
- Color flow doppler ultrasound show increased blood flow

AIT type 2 features

- Goiter is absent
- High level of IL 6
- Color flow doppler ultrasound show decreased blood flow

Question 48 of 191

Question Difficulty:

Average

Mrs. X was referred for investigation of weight loss. Her husband has also noticed 'fullness' of her neck.

Examination reveals she has exophthalmos and orange peel skin on both shins. Neck examination reveals non-tender goiter. Investigation shows:

TSH	0.05U/l	(0.5-4.5 U/l)
Free T4	36 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L

Which of the following tests should be ordered for diagnosis?

- ☐ Radioactive iodine uptake
- ☐ Anti-thyroid peroxidase antibodies
- ☐ Neck Ultrasound
- ☒ Thyroid gland biopsy
- ☐ Anti-TSH receptor stimulating antibodies

Which of the following tests should be ordered for diagnosis?

- ☐ Radioactive iodine uptake
- ☐ Anti-thyroid peroxidase antibodies
- ☐ Neck Ultrasound
- ☒ Thyroid gland biopsy
- ☐ Anti-TSH receptor stimulating antibodies

Description

This lady has exophthalmos and pretibial myxedema which are specific for diagnosis of Graves' disease. Assay for thyrotrophin-receptor antibodies is diagnostic. Anti-TSH receptor stimulating antibodies is more sensitive for diagnosis (90%) than anti-thyroid peroxidase antibodies (50%).

CHECK ANSWER

END SESSION

NEXT

Question 49 of 191

Question Difficulty: **Hard**

14 years old girl is complaining from primary amenorrhoea. Examination shows poorly defined secondary sexual characters and small breast size. She has a history of anosmia and cleft lip since birth. Investigations show:

LH	0.6 IU/L	Females 1-20 IU/L
FSH	0.4 IU/L	Females 1-20 IU/L

What is the management of choice?

- ☐ Pulsatile GnRH therapy
- ☐ Human chorionic gonadotrophins
- ☒ Human menopausal gonadotropin
- ☐ LH and FSH
- ☐ Estrogen

Description

This girl has Kallmann syndrome. It is a genetic condition causing delayed puberty secondary to hypogonadotropic hypogonadism. It is caused by failure of GnRH-secreting neurons to migrate to the hypothalamus. It is associated with anosmia caused by hypoplasia of the olfactory bulbs, cleft lip, palate and visual and hearing defects.

Hormone replacement therapy (testosterone for the males and HRT for females) will achieve normal androgenic functions as libido, muscle development, energy levels, hair growth and sexual function.

The other options are used for fertility induction.

CHECK ANSWER

END SESSION

NEXT

Question 50 of 191

Question Difficulty:

Easy

25 years Mrs. X is complaining of palpitations and weight loss for 2 weeks. She had successful delivery of her 2nd child 1 month ago.

Examination reveals diffusely enlarged thyroid gland. Investigation shows:

TSH	0.05UI	(0.5-4.5 UI)
Free T4	36 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L
Anti-TPO	positive	

Radioactive iodine uptake was ordered and showed normal intake.

What is the most likely diagnosis?

- ☐ Toxic multinodular goiter
- ☒ Postpartum thyroiditis
- ☐ Hashimoto thyroiditis
- ☐ Graves' disease
- ☒ Subclinical hyperthyroidism

Description

PPT is an autoimmune thyroid disease that occurs during the first year after delivery. Women with PPT present with transient hyperthyroidism followed by hypothyroidism.

It affects 4-10% of women, the risk increase to 30-50% for women who have positive Anti-thyroid peroxidase antibodies.

Post-partum thyroiditis is differentiated from Graves' disease by a lack of increased uptake on thyroid scanning.

CHECK ANSWER

END SESSION

NEXT

Question 51 of 191

Question Difficulty:

Hard

19 years old Miss X is complaining of primary amenorrhea. Examination shows she looks a little hirsute. She has ambiguous genitalia and there is excess hair over her lower abdomen and around her nipple area. Investigations show:

Leukocyte count	8.2 X10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	130 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	16 mmol/L	(22-28 mmol/L)

Pelvic ultrasound bilateral ovaries and uterus visualized. 17-OH progesterone is 1.6 times the upper limit of normal

Which of the following is the most likely diagnosis?

- ☒ 21-hydroxylase deficiency
- ☐ 11-beta hydroxylase deficiency
- ☒ Polycystic ovarian syndrome
- ☐ Turner syndrome
- ☐ Testicular feminisation syndrome

Description

This patient has congenital adrenal hyperplasia (CAH). It is a group of autosomal recessive disorders causing deficiency of an enzyme involved in the synthesis of cortisol, aldosterone or both.

It is manifested by early pubic hair, precocious puberty, ambiguous genitalia, excessive facial hair, virilization and menstrual irregularity in females. LAB findings show hyponatremia, hyperkalemia and metabolic acidosis.

17-hydroxyprogesterone is elevated in 21-hydroxylase deficiency while 11-deoxycortisol and deoxycorticosterone are elevated in 11-beta-hydroxylase deficiency.

CHECK ANSWER

END SESSION

NEXT

Question 52 of 191

Question Difficulty:

Hard

Mrs. X was admitted to the ED complaining of abdominal pain with vomiting. She has a past medical history of Hashimoto disease.

Examination shows temp of 37.6 C, pulse 110 bpm and blood pressure of 80/50 mmHg. Investigations show:

Hemoglobin	13 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	5.2 X10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	132 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
Fasting glucose	3.2 mmol/L	3.5-5.5 mmol/L

What is the most likely diagnosis?

- ☐ SIADH
- ☐ Polyglandular autoimmune syndrome type 1
- ☐ Hypothyroidism
- ☒ Polyglandular autoimmune syndrome type 2
- ☐ Conn syndrome

Description

This lady has polyglandular autoimmune syndrome type 2. It is the most common type of the immuno-endocrinopathy syndrome. It occurs primarily in adulthood with higher prevalence in females. It is featured by:

- Addison disease
- Autoimmune thyroid disease (Hashimoto thyroiditis and Graves' disease)
- Type 1 diabetes mellitus
- Rare manifestations as hypogonadism, myasthenia gravis and celiac disease

Polyglandular autoimmune syndrome type 1 is a rare disorder, with sporadic autosomal recessive inheritance. It usually presents in childhood.

It is featured by:

- Polyendocrinopathy (hypoparathyroidism and Addison disease)
- Chronic mucocutaneous candidiasis
- Ectodermal dys trophy

Question 53 of 191

Question Difficulty:

Easy

Mr. X was complaining of losing weight. He was recently diagnosed to have type-2 diabetes mellitus. Examination reveals he has angular stomatitis and an erythematous rash shown in image. Investigations show normocytic anemia and elevated ESR.



What is the most likely diagnosis?

- ☐ Cushing disease
- ☐ Insulin allergy
- ☐ Somatostatinoma
- ☒ Insulinoma
- ☐ Glucagonoma

Description

Glucagonoma is a rare neuroendocrine that originate from the alpha-2 cells of the pancreas causing glucagon overproduction.

It is manifested by weight loss, diabetes mellitus, normochromic normocytic anemia, necrolytic migratory erythema (annular erythematous plaques, vesicles, and erosions shown in the image), angular stomatitis and thromboembolic complications.

CHECK ANSWER

END SESSION

NEXT



Question 54 of 191

Question Difficulty:

Hard

15 years Miss X is referred to the gynecologist as she is complaining of amenorrhea for 5 months. She reported feeling tired and lethargic for the last six months despite she does regular trainings.

Examination shows a pale and thin girl with BMI of 16. There is atrophy of the breasts and loss of muscle mass. Her skin is dry, her hair is thin and there is cyanosis on her fingers. Investigations show hypoglycemia and hypercholesterolemia with low FSH, LH and estrogen.

What is the management of choice?

- ☐ Hormone replacement therapy
- ☐ IV corticosteroid
- ☒ High caloric diet
- ☐ Refer for psychiatrist and slow refeeding
- ☐ Pituitary MRI

Description

This girl is complaining of anorexia nervosa. Signs and symptoms include:

- Dry skin
- Lanugo body hair
- Acrocyanosis (persistent blue discoloration of the extremities)
- Atrophy of the breasts
- Hypotension
- Amenorrhea
- Parotid and submandibular glands swelling
- Peripheral edema
- Thinning hair
- Hypothermia
- Loss of muscle mass

Lab findings include:

- Hypokalemia, hypocalcemia and metabolic alkalosis
- Low WBC count and normocytic normochromic anemia
- Hypoglycemia and hypercholesterolemia
- Low PTH, FSH, LH, estrogens and testosterone
- Elevated serum cortisol
- Elevated liver functions
- Increased serum amylase level

Management is by Refeeding slowly to avoid refeeding syndrome and cognitive behavioral therapy

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 53

✓ Correct: 9

✗ Incorrect: 44

Average Score: 16.98
%

Question 55 of 191

Question Difficulty:

Average

Mr. X is complaining of hypertension which is difficult to treat. He has noted that his face has become more rounded over the years and increasing trouble with both acne and hirsutism. He has a recent history of hemophysis. Investigations show:

Serum sodium	142 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.56	(7.35-7.45)
24 H urinary cortisol	650 mmol/24 h	250 mmol/24 h
Midnight plasma ACTH	0.09 pmol/L	1.55-11.1 pmol/L

Which of the following investigations to be requested?

- ☐ Chest CT
- ☐ High-dose dexamethasone suppression
- ☐ Corticotrophin releasing hormone stimulation
- ☒ Abdominal CT
- ☐ Pituitary MRI

Description

This patient has ACTH independent Cushing syndrome. The next step is abdominal CT for localizing adrenal adenoma or carcinoma as the commonest causes of ACTH independent Cushing syndrome.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 54

Correct: 9

Incorrect: 45

Average Score: 16.67

Question 56 of 191

Question Difficulty:

Hard

Mr. X is complaining of progressive shortness of breath and dysphagia for solids for 4 months. He also reported a large in his neck.

Examination reveals a diffuse goiter and CT shows retrosternal extension. Investigations show:

TSH	0.05UI	(0.5-4.5 UI)
Free T4	36 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L
Anti-TPO	negative	

Radiiodine uptake shows patchy uptake with areas of increased and decreased uptake.

What is the most likely diagnosis?

- ☐ Thyroid carcinoma
- ☒ Toxic multinodular goiter
- ☐ Hashimoto' thyroiditis
- ☐ Graves' disease
- ☒ Toxic thyroid nodule

Description

Toxic multinodular goiter is a thyroid gland that contains autonomously functioning thyroid nodules which results in hyperthyroidism and obstructive symptoms (dysphagia, dyspnea or stridor).

Radioactive iodine uptake is increased and is diffusely distributed over the entire gland in Graves' disease and antibodies are positive. Toxic thyroid nodule shows single nodule with increase uptake of iodine.

CHECK ANSWER

END SESSION

NEXT

Question 57 of 191

Question Difficulty:

Hard

Mr. X is complaining of thirst and lethargy. He recently visited dermatology clinic for an erythematous rash that began on his groin but has now spread to involve the buttocks, lower limbs and perineum and glossitis. Investigations show:

Serum creatinine	100 mmol/L	(53-106 mmol/L)
Bilirubin	15 µmol/L	(2-17 µmol/L)
ALT	40 U/L	(8-20 U/L)
Hemoglobin	11 g/dL	13.5-17.5 g/dL
Leukocyte count	$6 \times 10^9 /L$	$4.0-11.0 \times 10^9 /l$
Fasting glucose	8.5 mmol/l	3.5-5.5 mmol/l

What would be the next investigation of choice?

- ☐ Oral glucose tolerance test
- ☒ Glucagon level
- ☐ Repeat fasting plasma glucose
- ☐ Abdominal CT
- ☒ Insulin level

Description

This patient has Glucagonoma. It is a rare neuroendocrine that originate from the alpha-2 cells of the pancreas causing glucagon overproduction.

It is manifested by weight loss, diabetes mellitus, normochromic normocytic anemia, necrolytic migratory erythema (annular erythematous plaques, vesicles, and erosions shown in the image), angular stomatitis and thromboembolic complications.

Raised plasma glucagon level is diagnostic. CT scan is used for tumor localization and metastatic spread.

CHECK ANSWER

END SESSION

NEXT

Question 58 of 191

Question Difficulty:

Easy

Mr. X is complaining of weight loss. He has past history of paroxysmal ventricular tachycardia and on management with amiodarone. Thyroid gland examination reveals goiter. Investigations show:

TSH	0.02 U/l	(0.5-4.5 U/l)
Free T4	43 pmol/L	10 - 23 pmol/L
IL 6	negative	
Anti-TPO	positive	

Color flow doppler ultrasound of the thyroid gland shows increased blood flow.

What is the management of choice?

- ☐ Propranolol
- ☐ Subtotal thyroidectomy
- ☐ Radioactive iodine
- ☒ Prednisolone
- ☐ Carbimazole

Description

This patient has amiodarone-induced thyrotoxicosis type 1. It is manifested by:

- Goiter is present
- Normal thyroid uptake scan
- Positive thyroid autoantibodies
- Color flow doppler ultrasound show increased blood flow

Management is by carbimazole and discontinues amiodarone.

CHECK ANSWER

END SESSION

NEXT

Question 59 of 191

Question Difficulty:

Hard

Mr. X is suffering from 3 month history of lethargy and weight loss. 6 years previously he was diagnosed with diabetes mellitus and was receiving glibenclamide and metformin on maximum dosing.

Examination shows a BMI of 25.6 kg/m², a pulse of 88 beats per minute and a blood pressure of 164/102 mmHg. His urine shows +protein.

Other investigations show:

Serum creatinine	116 mmol/L	(53-106 mmol/L)
Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	3.8 mmol/L	(3.5-5.0 mmol/L)
HbA1c	64 mmol/mol (8%)	

Sitagliptin was added to his current treatment and his HbA1c was reduced to 60 mmol/mol (7.7%).

What is the action to be taken?

- ☒ Stop metformin and start pioglitazone
- ☐ No action needed
- ☐ Add canagliflozin
- ☒ Stop metformin and glibenclamide and start insulin
- ☐ Change glibenclamide to insulin

Description

NICE suggests if HbA1c levels are not adequately controlled by a single drug and rise to 58 mmol/mol (7.5%) or higher: intensify drug treatment (First intensification with dual non-insulin drugs and Second intensification with triple non-insulin drugs or any treatment combination containing insulin).

CHECK ANSWER

END SESSION

NEXT

Question 60 of 191

Question Difficulty: **Hard**

On regular follow up of Mr. X who is complaining of progressive obesity his thyroid functions tests shows:

TSH	12 U/I	(0.5-4.5 U/I)
Free T4	12 pmol/L	10 - 23 pmol/L
Free T3	4 pmol/L	3.5 - 6.5 pmol/L

He has no past medical history of autoimmune thyroid diseases. Thyroid autoantibodies are negative.

What is the management of choice?

- ☐ Low dose corticosteroids
- ☐ Follow up
- ☒ Low dose thyroxin
- ☐ High dose thyroxin
- ☐ Low dose carbimazole

- ☐ Low dose corticosteroids
- ☐ Follow up
- ☒ Low dose thyroxin
- ☐ High dose thyroxin
- ☐ Low dose carbimazole

Description

This patient is complaining of subclinical hypothyroidism. It carries a risk of progressing to overt hypothyroidism is 2-5% of cases. TSH is elevated with normal T3 and T4.

Management is by low dose thyroxin. Indications include:

- TSH > 10
- Positive thyroid autoantibodies
- Other autoimmune disorder
- Previous history of Graves' disease

Question 61 of 191

Question Difficulty:

Easy

Mr. X is suffering from dizziness and lethargy for 3 weeks. His GP recorded hypotension and hypoglycemia as well. Investigations show:

Hemoglobin	13 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	5.2×10^9 /L	($4.0-11.0 \times 10^9$ /L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	132 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.31	(7.35-7.45)

Which of the following investigations would be requested to confirm diagnosis?

- ☐ TSH
- ☐ Random plasma cortisol
- ☐ Overnight dexamethasone suppression test
- ☐ Free T4
- ☒ Short synacthen test

Description

This patient has adrenal insufficiency. It is manifested by hyponatremia, hyperkalemia and metabolic acidosis associated with hypoglycemia and hypotension.

Rapid ACTH stimulation test (cosyntropin or synacthen) is diagnostic. Random plasma cortisol value < 25 mcg/dL is diagnostic but not specific.

CHECK ANSWER

END SESSION

NEXT

Question 62 of 191

Question Difficulty:

Average

Mr. X was admitted collapsed to the ED from the pulmonology ward where he was admitted for management of pneumonia. His past medical history includes hypothyroidism and diabetes mellitus.

Examination shows temp of 40 C, pulse 150 bpm and blood pressure of 80/50 mmHg. Investigations show:

Hemoglobin	13 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	4.2 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Serum creatinine	110 mmol/L	(53-106 mmol/L)
Serum sodium	128 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.25	(7.35-7.45)

What is the most likely cause of his collapse?

- ☐ SIADH
- ☐ Hypothyroidism
- ☐ Thyroid storm
- ☐ Septic shock
- ☒ Adrenal crisis

Description

This patient has Addison disease complicated by adrenal crisis. Addison disease is manifested by hyponatremia, hyperkalemia and metabolic acidosis associated with hypoglycemia and hypotension. There associated features of other autoimmune diseases as autoimmune hypothyroidism.

Adrenal crisis is manifested by nausea, vomiting, shock, cyanosis, acute abdomen and hyperpyrexia.

CHECK ANSWER

END SESSION

NEXT

Question 63 of 191

Question Difficulty:

Easy

25 years MRS. X is complaining of amenorrhea and galactorrhea for 6 months. Neurological examination reveals visual field defects. Investigations reveal serum prolactin of 1500 mU/L.

Which of the following investigations should be requested?

- ☐ Insulin tolerance test
- ☐ Brain CT angiography
- ☒ High dose dexamethasone suppression test
- ☐ Brain MRI
- ☐ Serum testosterone

Description

This patient is suffering from pituitary tumor probably prolactinoma. Visual field defects are associated with suprasellar extension of the tumor which compresses the optic chiasm.

MRI brain scanning is diagnostic; it shows hypodense area. Serum prolactin range from 1500 mU/L to 3000 mU/L in patients with microprolactinoma and levels exceeds 3000 mU/L in those with macroprolactinoma.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered 62

✓ Correct 12

✗ Incorrect 50

🏆 Average Score: 19.35 %

Question 64 of 191

Question Difficulty:

Hard

Mr. X is complaining of tiredness, weakness, and loss of body hair. Examination shows has sub-normal secondary sexual characteristics with gynaecomastia.

Brain MRI shows 1.9 CM hypodense area confined to the pituitary fossa. Investigations show serum prolactin of 2900ng/L.

What is the management of choice?

- ☐ Radiotherapy
- ☐ Cabergoline
- ☐ Pituitary biopsy
- ☒ Transphenoidal hypophysectomy
- ☐ Follow up

Description

This patient has macroprolactinoma (Serum prolactin range from above 3000 mU/L and the size is > 1 CM).

For macroprolactinoma surgery in conjunction with dopamine-agonist (bromocriptine and cabergoline) is the management of choice.

Microprolactinoma respond well to dopamine agonists (surgery is not indicated).

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered 63

✓ Correct 12

✗ Incorrect 51

🏆 Average Score: 19.05 %

Question 65 of 191

Question Difficulty:

Hard

Mr. X is complaining of muscle weakness. He was recently diagnosed to have meningitis and has a past medical history of diabetes mellitus and hypertension.

Investigations show serum sodium 127 mmol/l, plasma osmolality 160 mmol/kg and urine osmolality 950 mmol/kg.

Which of the following drugs should be withdrawn before starting management?

- ☐ Fibrates
- ☐ Metformin
- ☐ Insulin
- ☒ Sulfonylurea
- ☐ Captopril

Description

This patient has syndrome of inappropriate antidiuretic hormone. It is manifested by generalized muscle weakness, myoclonus, hyporeflexia, confusion, delirium and seizures. Investigations show hyponatremia with low plasma osmolality, high urine osmolality.

Drugs causing SIADH are sulfonylureas, SSRIs, TCA, carbamazepine, vincristine and cyclophosphamide, so sulfonylureas should be withdrawn.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 64

✓ Correct 13

✗ Incorrect 51

✓ Average Score: 20.31 %

Question 66 of 191

Question Difficulty:

Easy

14 years old girl is complaining from primary amenorrhoea. Examination shows poorly defined secondary sexual characters and small breast size. She has a history of anosmia and cleft lip since birth. Investigations show:

LH	0.6 IU/L	Females 1-20 IU/L
FSH	0.4 IU/L	Females 1-20 IU/L

What is the most likely diagnosis?

- ☐ Premature ovarian failure
- ☐ Turner syndrome
- ☐ Autoimmune ovarian failure
- ☒ Kallmann syndrome
- ☐ Androgen insensitivity syndrome

Description

Kallmann syndrome is a genetic condition causing delayed puberty secondary to hypogonadotropic hypogonadism. It is caused by failure of GnRH-secreting neurons to migrate to the hypothalamus. It manifested by:

- Delayed puberty and poorly defined secondary sexual characters
- Primary amenorrhoea for females and infertility in males (testicular size < 3 mL, cryptorchidism)
- Patients are typically of normal or above average height
- Anosmia caused by hypoplasia of the olfactory bulbs
- Cleft lip, palate and visual, hearing defects
- Low levels of the gonadotrophins LH and FSH

CHECK ANSWER

END SESSION

NEXT

Question 67 of 191

Question Difficulty:

Hard

Mr. X was diagnosed to have type 2 diabetes and was started on metformin and insulin. He is suffering from hypoglycemic episodes and his GP suggests self-monitoring by HbA1c measurement.

What is the targeted HbA1c level?

- ☐ 70 mmol/mol (8.5%)
- ☐ 64 mmol/mol (8.0%)
- ☒ 53 mmol/mol (7.0%)
- ☐ 58 mmol/mol (7.5%)
- ☐ 48 mmol/mol (6.5%)

Description

NICE suggests HbA1c level of 48 mmol/mol (6.5%) in management not associated with hypoglycemia and to 53 mmol/mol (7.0%) in management associated with hypoglycemia.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

 Answered 66

✓ Correct 14

✗ Incorrect 52

 Average Score: 21.21 %

Question 68 of 191

Question Difficulty:

Easy

Mr. X was found complaining of hypertension and palpitations. His father has a recent history of subtotal thyroidectomy due to a thyroid cancer.

Examination reveals BP of 160/110 mmHg with heart rate of 112 per minute. Investigations show:

Hemoglobin	13 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	$6.2 \times 10^9/L$	($4.0-11.0 \times 10^9/L$)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	139 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.9 mmol/L	(2.1-2.8 mmol/L)

What is the most likely diagnosis?

- ☒ MEN-2a
- ☐ MEN-1
- ☒ Carcinoid syndrome
- ☐ MEN-2b
- ☐ Pheochromocytoma

Description

This patient has pheochromocytoma and family history of medullary thyroid cancer. Both are features of multiple endocrine neoplasia type 2. MEN type 2a is associated with parathyroid hyperplasia which causes hypercalcaemia.

CHECK ANSWER

END SESSION

NEXT

Question 69 of 191

Question Difficulty:

Hard

25 years Mrs. X is complaining of palpitations and weight loss for 2 weeks. She had successful delivery of her 2nd child 1 month ago.

Examination reveals diffusely enlarged thyroid gland. ECG shows atrial fibrillation. Investigation shows:

TSH	0.05UI	(0.5-4.5 UI)
Free T4	36 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L
Anti-TPO	positive	

Radioactive iodine uptake is increased and is diffusely distributed over the entire gland.

What is the most likely diagnosis?

- ☒ Graves' disease
- ☐ Postpartum thyroiditis
- ☐ Subclinical hyperthyroidism
- ☒ Toxic multinodular goiter
- ☐ Hashimoto thyroiditis

Description

Graves' disease is an autoimmune disease characterized by hyperthyroidism due to circulating autoantibodies. Positive anti-thyroid peroxidase antibody is a sign of sign of graves' disease as well as postpartum thyroiditis. Radioactive iodine uptake show increased uptake in graves' disease and normal uptake in postpartum thyroiditis.

Hashimoto thyroiditis is associated with hypothyroidism with an insidious onset. Toxic multinodular goiter is radioiodine uptake shows patchy uptake with areas of increased and decreased uptake.

CHECK ANSWER

END SESSION

NEXT

Question 70 of 191

Question Difficulty:

Easy

Mr. X is admitted with drowsiness and confusion. His wife reported he is complaining of thirst and passing large volumes of urine and lower respiratory tract infection over the past few days. He has a long history of type 1 diabetes.

Examination reveals BP is 100/60 mmHg, pulse 95, rapid deep breathing and ketotic breath odor. His random glucose is 36.2 mmol/l.

Which of the following investigations would be expected?

- ☐ Serum bicarbonate 19 mmol/l
- ☒ Serum bicarbonate 30 mmol/l
- ☐ pH 7.25
- ☐ Anion gap 5
- ☐ pH 7.38

Description

This patient has Diabetic ketoacidosis (DKA). American Diabetes Association (ADA) diagnostic criteria of diabetes ketoacidosis:

- Blood glucose >13.8 mmol/l
- pH < 7.30
- Serum bicarbonate <18 mmol/l
- Anion gap > 10
- Ketonemia

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 69

Correct 14

Incorrect 55

Average Score: 20.29 %

Question 71 of 191

Question Difficulty:

Hard

Mr. X was complaining of complaints of polydipsia and polyuria. On dipstick urine testing there are 2+ of glucose. Examination reveals he has angular stomatitis and an annular erythematous plaques rash in groin.

Investigations show serum glucagon levels. Abdominal CT shows 2x2 cm mass in the pancreases and 2 masses measure 1x2 in the liver.

What is the management of choice after resecting pancreatic mass?

- ☐ Surgical resection
- ☒ Arterial occlusion with embolization for liver masses
- ☐ Chemotherapy
- ☐ Radiotherapy
- ☐ Liver transplantations

Description

This patient has Glucagonoma. It is a rare neuroendocrine that originate from the alpha-2 cells of the pancreas causing glucagon overproduction.

Surgical resection is the management of choice for non-metastatic tumors. Hepatic arterial occlusion with embolization is indicated for liver metastases.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 70

✓ Correct 14

✗ Incorrect 56

Average Score: 20 %

Question 72 of 191

Question Difficulty:

Hard

Mr. X is complaining of painless, palpable, solitary, hard and fixed thyroid nodule for 3 months. There is axillary lymph nodes enlargement. Investigations show:

TSH	2 U/I	(0.5-4.5 U/I)
Free T4	12 pmol/L	10 - 23 pmol/L
Free T3	4 pmol/L	3.5 - 6.5 pmol/L
ESR	88 1st hour	
Serum calcium	3.1 mmol/L	(2.1-2.8 mmol/L)

Neck ultrasound reveals an irregular mass invading the capsule. Radioactive iodine shows cold thyroid nodule.

What is the management of choice?

- ☐ Chemotherapy
- ☐ Total thyroidectomy and radiotherapy to lymph nodes
- ☐ Total thyroidectomy followed by radioiodine
- ☒ Total thyroidectomy and lymphatic dissection
- ☐ Total thyroidectomy and thyroxin replacement

Description

This patient has medullary thyroid cancer. It secretes calcitonin causing hypercalcaemia and a of part of MEN type2. Lymphatic spread is more common than hematogenous spread.

Management is by total thyroidectomy and lymphatic dissection.

CHECK ANSWER

END SESSION

NEXT

Question 73 of 191

Question Difficulty:

Hard

Mr. X was investigated for hypertension. Investigations show:

Hemoglobin	13 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	6.2 X 10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	142 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.56	(7.35-7.45)

His 24-hour urinary free cortisol levels were high on two occasions and he has significantly raised serum cortisol levels with loss of diurnal rhythm.

Which of the following tests would be requested?

- ☐ High-dose dexamethasone suppression test
- ☐ Overnight dexamethasone suppression test
- ☒ Midnight plasma ACTH
- ☐ Corticotrophin releasing hormone stimulation
- ☐ Pituitary MRI

Description

This patient has Cushing syndrome due to hypokalemic alkalosis. 24 hours urinary free cortisol confirms hypercortisolism. The next step in diagnosis is assessing the disease whether due to ACTH dependent or ACTH independent by Midnight plasma ACTH.

CHECK ANSWER

END SESSION

NEXT

Question 74 of 191

Question Difficulty:

Hard

Mr. X was headache and hypertension despite 3 drug therapy. He is now taking ramipril, amlodipine and atenolol all on maximum dose.

Investigations show:

Serum creatinine	99 mmol/L	(53-106 mmol/L)
Serum sodium	151 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	30 mmol/L	(22-28 mmol/L)
pH	7.56	(7.35-7.45)
Fasting glucose	4.8 mmol/l	4 - 5.5 mmol/l

Abdominal CT shows left benign adrenal mass.

What is the management of choice?

- ☐ Furosemide
- ☐ Pituitary hypophysectomy
- ☒ Spironolactone
- ☐ Unilateral adrenalectomy
- ☐ Chemotherapy

Description

This patient has Conn syndrome. Unilateral adrenalectomy is of choice in patients with adrenal adenoma. Medical management (spironolactone) is of choice for idiopathic adrenal hyperplasia.

CHECK ANSWER

END SESSION

NEXT

Question 75 of 191

Question Difficulty:

Easy

20 years old man is complaining of polyuria. He has a strong family history of type 2 diabetes. Investigations show fasting glucose of 8.2 mmol/l and hemoglobin A1C was 8.9% (74 mmol/mol). Genetic analysis shows mutation of the HNF1 α gene.

What is the management of choice?

- ☐ Rosiglitazone
- ☐ Metformin
- ☐ Glimepiride
- ☒ Acarbose
- ☐ Insulin

Description

This patient has maturity onset of diabetes of youth (MODY) type 3. It is caused by mutation of the HNF1 α gene causing type2 diabetes. It represents 70% of cases of MODY.

Management is by sulfonylureas. Insulin is used in none responsive cases.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered: 74

✓ Correct: 14

✗ Incorrect: 60

📈 Average Score: 18.92 %

Question 76 of 191

Question Difficulty:

Hard

Mr. X was seeking medical advice about recent weight gain. Examination reveals obesity especially in the face, supraclavicular region, upper back, and torso with skin thinning, hirsutism and bruising. There is gynaecomastia. Investigations show:

Serum sodium	142 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.56	(7.35-7.45)
24 h urinary cortisol	450 mmol/24 h	250 mmol/24 h
Midnight plasma ACTH	33 pmol/L	1.55-11.1 pmol/L

Which of the following tests would be requested?

- ☐ Pituitary MRI
- ☐ Overnight dexamethasone suppression test
- ☐ Corticotrophin releasing hormone stimulation
- ☐ Abdominal CT
- ☒ High-dose dexamethasone suppression test

Description

This patient has ACTH dependent Cushing syndrome. The next step is to localize the source of ACTH whether it is pituitary or from ectopic source by high-dose dexamethasone suppression test (suppression of cortisol in pituitary source and no change in ectopic ACTH source).

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 75

Correct: 14

Incorrect: 61

Average Score: 18.67

Question 77 of 191

Question Difficulty:

Hard

Mr. X is complaining of fever palpitations for 1 week. She also noted an enlarged painful neck swelling. She was presented to her general practitioner a month ago with flu-like symptoms.

Examination reveals a diffuse, tender goiter. Investigation showed TSH of 0.05U/l and T4 of 36 pmol/L. Radioactive iodine uptake scan revealed less than 2% uptake within the thyroid gland.

Which of the following drugs would be unhelpful?

- ☒ Carbimazole
- ☐ Propranolol
- ☐ Aspirin
- ☒ Prednisolone
- ☐ Ibuprofen

Description

This patient has subacute thyroiditis (De Quervain thyroiditis). It is a transient inflammation (mostly viral) of the thyroid associated with a clinical course of hyperthyroidism due to increased release of stored thyroid hormone rather than increased production.

It is associated with painful goiter with raised ESR and globally reduced radioactive iodine uptake.

Management includes propranolol for symptomatic relief, analgesia for thyroid pain and corticosteroids. Antithyroid drugs are not indicated as hyperthyroidism is transient as hyperthyroidism is due to increased release of stored thyroid hormone rather than increased production.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 76

Correct 15

Incorrect 61

Average Score: 19.74 %

Question 78 of 191

Question Difficulty:

Hard

Mr. X with 3 months history of hemoptysis and weight loss was investigated for resistant hypertension.

Serum sodium	142 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.56	(7.35-7.45)
24 H urinary cortisol	450 mmol/24 h	250 mmol/24 h
Midnight plasma ACTH	33 pmol/L	1.55-11.1 pmol/L

High-dose dexamethasone suppression test shows 10% decrease in serum cortisol levels.

Which of the following investigations to be requested?

- ☐ Pituitary MRI
- ☒ Chest CT
- ☐ Abdominal CT
- ☐ Corticotrophin releasing hormone stimulation
- ☐ Abdominal MRI

Description

This patient has ACTH dependent Cushing syndrome. High-dose dexamethasone suppression test shows the ACTH is not from a pituitary source. The next step is CT chest for localizing a small cell lung cancer.

CHECK ANSWER

END SESSION

NEXT

Question 79 of 191

Question Difficulty:

Hard

25 years Mrs. X who was in her 2nd trimester was referred to the diabetes in pregnancy clinic as she has a first child was a large at birth, and now she is noted to have a fetus that is large for dates.

Investigations show fasting plasma glucose of 6.5 mmol/l and 2 h glucose of 8.4 mmol/l.

What is the management of choice?

- ☐ Insulin therapy
- ☐ Repaglinide
- ☒ Metformin
- ☐ Glibenclamide
- ☐ Dietary advice only

Description

This lady has gestational diabetes. It is a condition in which women without previously diagnosed diabetes exhibit high blood glucose levels during pregnancy. It affects 3-10% of pregnancies.

Fasting blood glucose level > 5.6 mmol/l and/or 2-h level of 7.8 mmol/l is diagnostic.

Metformin is safe during pregnancy and considered 1st line. Insulin therapy is alternative or as a combination therapy with metformin. Glibenclamide is third line therapy.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered 78

✓ Correct 16

✗ Incorrect 62

📊 Average Score: 20.51 %

Question 80 of 191

Question Difficulty:

Average

Mrs. X with a history of Kallmann syndrome is seeking medical advice. She is managed with estrogen only pills for optimizing secondary sexual characters. She wishes to start a family and having a baby.

What is your advice?

- ☐ Progesterone injection
- ☐ Cabergoline
- ☒ Estrogen-progesterone pills
- ☐ GnRH antagonist
- ☐ Pulsatile GnRH therapy

Description

Fertility management of Kallmann syndrome is by:

- Gonadotropins LH and FSH stimulate the production and release of eggs and sperm
- Human chorionic gonadotropins (HCG) and Human menopausal gonadotropin (HMG)
- Pulsatile GnRH therapy

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered 79

✓ Correct 16

✗ Incorrect 63

📈 Average Score: 20.25 %

Question 81 of 191

Question Difficulty:

Easy

Mr. X was admitted to the ED complaining of abdominal pain with vomiting. He has past medical history of recurrent DVT.

Examination shows BP of 90/60 mmHg and lower limb Livedo reticularis. Investigations show:

Hemoglobin	13 g/dL	(13.5-17.5 g/dL)
Leukocyte count	5.2 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	128 mmol/L	(136-145 mmol/L)
Serum potassium	5.7 mmol/L	(3.5-5.0 mmol/L)
pH	7.31	(7.35-7.45)
aPTT	76	30-50 seconds
INR	1.1	0.8-1.2

What is the most likely diagnosis?

- ☐ Addison disease
- ☐ Pituitary infarction
- ☒ Antiphospholipid syndrome
- ☐ Protein S deficiency
- ☒ Autoimmune polyendocrine syndrome

Description

This patient is complaining of adrenal crisis due to thrombosis caused by antiphospholipid syndrome (‘Hughes’ syndrome). Antiphospholipid syndrome is a disorder that manifests clinically as recurrent venous or arterial thrombosis and/or fetal loss.

It may occur as primary disorder or secondary to other conditions as autoimmune disorders (systemic lupus erythematosus) and lymphoproliferative disorders.

It is manifested by thrombocytopenia and paradoxical prolongation of APTT.

CHECK ANSWER

END SESSION

NEXT

Question 81 of 191

Question Difficulty:

Easy

Mr. X was admitted to the ED complaining of abdominal pain with vomiting. He has past medical history of recurrent DVT.

Examination shows BP of 90/60 mmHg and lower limb Livedo reticularis. Investigations show:

Hemoglobin	13 g/dL	(13.5-17.5 g/dL)
Leukocyte count	5.2 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	128 mmol/L	(136-145 mmol/L)
Serum potassium	5.7 mmol/L	(3.5-5.0 mmol/L)
pH	7.31	(7.35-7.45)
aPTT	76	30-50 seconds
INR	1.1	0.8-1.2

What is the most likely diagnosis?

- ☐ Addison disease
- ☐ Pituitary infarction
- ☒ Antiphospholipid syndrome
- ☐ Protein S deficiency
- ☒ Autoimmune polyendocrine syndrome

Description

This patient is complaining of adrenal crisis due to thrombosis caused by antiphospholipid syndrome ('Hughes' syndrome). Antiphospholipid syndrome is a disorder that manifests clinically as recurrent venous or arterial thrombosis and/or fetal loss.

It may occur as primary disorder or secondary to other conditions as autoimmune disorders (systemic lupus erythematosus) and lymphoproliferative disorders.

It is manifested by thrombocytopenia and paradoxical prolongation of APTT.

CHECK ANSWER

END SESSION

NEXT

Question 82 of 191

Question Difficulty:

Average

18 years old Miss X was complaining of primary amenorrhea. She has 4 brother with one was investigated with precocious puberty.

Examination shows she has short stature and moderate hirsutism. Investigations show:

Leukocyte count	5.2 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	132 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	18 mmol/L	(22-28 mmol/L)

What is the most likely diagnosis?

- ☐ Hyperprolactinemia
- ☐ Polycystic ovarian syndrome
- ☐ Turner syndrome
- ☒ Congenital adrenal hyperplasia
- ☐ Addison disease

Description

Congenital adrenal hyperplasia (CAH) is a group of autosomal recessive disorders causing deficiency of an enzyme involved in the synthesis of cortisol, aldosterone or both.

It is manifested by early pubic hair, precocious puberty, ambiguous genitalia, excessive facial hair, virilization and menstrual irregularity in females.

LAB findings show hyponatremia, hyperkalemia and metabolic acidosis.

Addison disease shows same LAB findings without virilization problems.

CHECK ANSWER

END SESSION

NEXT

Question 83 of 191

Question Difficulty:

Average

Mr. X is complaining of pharyngitis followed by neck tenderness with fever and palpitations. Examination reveals a tender goiter. Investigations show:

Hemoglobin	14 g/dL	13.5-17.5 g/dL
WBC	8 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
ESR	42 1st hour	< 10 1st hour
TSH	0.05U/l	(0.5-4.5 U/l)
Free T4	36 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L

Which of the following investigations would be helpful for diagnosis?

- ☐ Fine needle aspiration
- ☐ Ultrasound scan of neck
- ☐ Blood cultures
- ☒ Serum anti-thyroid antibodies
- ☐ Radioactive iodine uptake scan

Description

This patient has subacute thyroiditis (De Quervain thyroiditis). It is a transient inflammation (mostly viral) of the thyroid associated with a clinical course of hyperthyroidism due to increased release of stored thyroid hormone rather than increased production.

It is associated with painful goiter with raised ESR

Global reduced radioactive iodine uptake differentiates De Quervain thyroiditis from other causes of hyperthyroidism.

CHECK ANSWER

END SESSION

NEXT

Question 84 of 191

Question Difficulty:

Easy

Mr. X with a history of hypertension is seeking medical advice about obesity management. His current BMI is 38 kg/m² Lifestyle and a trial of orlistat have failed to reduce his weight.

Which one of the following is the most suitable intervention?

- ☐ Laparoscopic-adjustable gastric banding
- ☒ Referral for counselling to discuss his excessive eating
- ☐ Bilio-pancreatic diversion with duodenal switch
- ☐ Sleeve gastrectomy
- ☐ Trial of sibutramine

Description

Types of bariatric surgery

- Restrictive surgery as laparoscopic-adjustable gastric banding (fewer complications, first-line intervention in patients with a BMI of 30-39kg/m²) or sleeve gastrectomy (patients with a BMI > 40 kg/m²)
- Malabsorptive surgery as bilio-pancreatic diversion with duodenal switch (patients with BMI > 60 kg/m²)

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered 83

✓ Correct 17

✗ Incorrect 66

📈 Average Score: 20.48 %

Question 85 of 191

Question Difficulty:

Average

Mr. X was referred to the ED with severe central abdominal pain. Acute pancreatitis was diagnosed and fundus examination was shown in the image



Which of the following lipid abnormalities would cause his disease?

- ☐ Remnant hyperlipidemia
- ☐ Hyperlipidemia associated with nephrotic syndrome
- ☐ Familial hypercholesterolemia
- ☒ Familial hypertriglyceridemia
- ☐ Familial combined hyperlipidemia

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered: 84

✓ Correct: 17

✗ Incorrect: 67

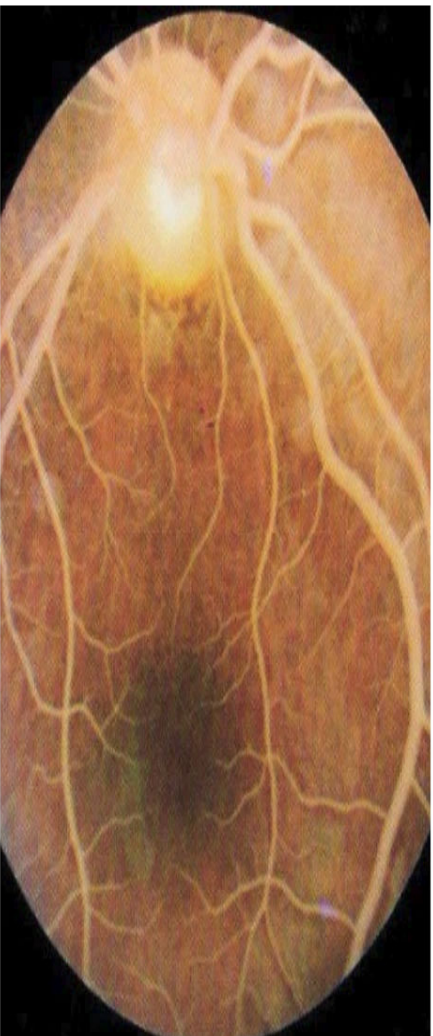
📊 Average Score: 20.24

Question 85 of 191

Question Difficulty:

Average

Mr. X was referred to the ED with severe central abdominal pain. Acute pancreatitis was diagnosed and fundus examination was shown in the image



Which of the following lipid abnormalities would cause his disease?

- ☐ Remnant hyperlipidemia
- ☐ Hyperlipidemia associated with nephrotic syndrome
- ☐ Familial hypercholesterolemia
- ☒ Familial hypertriglyceridemia
- ☐ Familial combined hyperlipidemia

Description

Familial hypertriglyceridemia is unlike familial hypercholesterolemia, there is no association with premature coronary disease. Other manifestations include:

- Eruptive xanthomas
- Lipemia retinalis (creamy appearance of the retinal blood vessels shown in the image)
- Acute pancreatitis

[CHECK ANSWER](#)[END SESSION](#)[NEXT](#)

Question 86 of 191

Question Difficulty:

Easy

Mr. X is complaining of shortness of breath and stridor for 5 weeks. He also reported 2 stones weight loss over the same period. Examination shows a non-tender goiter. CT shows mediastinal extension of the goiter. Investigations show:

TSH	0.15U/l	(0.5-4.5 U/l)
Free T4	42 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L
ESR	8 1st hour	< 10 1st hour
Anti-TPO	negative	

Radiiodine uptake shows areas of increased uptake in the right lobe and normal uptake in the left lobe.

What is the management of choice?

- ☒ Total thyroidectomy
- ☐ Propranolol
- ☒ Radioactive iodine therapy
- ☐ Carbimazole
- ☐ Radiotherapy

Description

This patient has toxic multinodular goiter. It is a thyroid gland that contains autonomously functioning thyroid nodules which results in hyperthyroidism and obstructive symptoms (dysphagia, dyspnea or stridor).

Radioactive iodine is the treatment of choice; it reduces the size of the goiter. Surgery is reserved for large nodules with obstructive symptoms, patients who are pregnant or in failure of radiiodine therapy. Antithyroid drugs and beta blockers are used for short courses for rendering patients euthyroid in preparation for radiiodine or surgery.

CHECK ANSWER

END SESSION

NEXT

Question 87 of 191

Question Difficulty:

Easy

Mr. X is complaining of 3 months of polyuria, constipation and renal stones. All examinations were free except hypertension and bradycardia. Serial investigations show:

Serum calcium	2.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	0.6 mmol/L	(0.81 - 1.45 mmol/L)
PTH	5.5 pmol/l	0.9-5.4 pmol/l
Urinary calcium	423 mg/24h	25-300 mg/24h
Urinary phosphate	46 mmol/24h	13-42 mmol/24h

What is the most likely diagnosis?

- ☒ Primary hyperparathyroidism
- ☐ Idiopathic Hypercalciuria
- ☐ Tertiary hyperparathyroidism
- ☐ Hypoparathyroidism
- ☐ Secondary hyperparathyroidism

Description

Primary hyperparathyroidism is manifested by hypercalcaemia, hypercalciuria, hypophosphatemia and elevated parathyroid hormone level (at the high end of the reference range).

Secondary hyperparathyroidism is manifested by hypocalcaemia and elevated parathyroid hormone. Idiopathic Hypercalciuria is not associated by elevated parathyroid hormone.

CHECK ANSWER

END SESSION

NEXT

Question 88 of 191

Question Difficulty:

Easy

Mr. X was referred to the ED with severe central abdominal pain. Acute pancreatitis was diagnosed and this is the third occasion he has presented in the last 5 years. Examination shows eruptive xanthomas. His lipid profile shows:

Total cholesterol	4.8 mmol/L	< 5.2 mmol/L
Triglyceride	3.6 mmol/L	< 1.70 mmol/L
High-density lipoprotein (HDL)	0.8 mmol/L	< 1.03 mmol/L
Low-density lipoprotein (LDL)	1.4 mmol/L	< 1.3 mmol/L

What is the most likely diagnosis?

- ☐ Remnant hyperlipidemia
- ☐ Familial hypercholesterolemia
- ☒ Familial hypertriglyceridemia
- ☐ Familial combined hyperlipidemia
- ☐ Hyperlipidemia associated with nephrotic syndrome

What is the most likely diagnosis?

- ☐ Remnant hyperlipidemia
- ☐ Familial hypercholesterolemia
- ☒ Familial hypertriglyceridemia
- ☐ Familial combined hyperlipidemia
- ☐ Hyperlipidemia associated with nephrotic syndrome

Description

Familial hypertriglyceridemia is unlike familial hypercholesterolemia, there is no association with premature coronary disease. Other manifestations include:

- Eruptive xanthomas
- Lipemia retinalis (creamy appearance of the retinal blood vessels shown in the image)
- Acute pancreatitis

Question 89 of 191

Question Difficulty:

Average

Mr. X is complaining of exceptional shortness of breath and palpitations for 5 weeks. He also reported 2 stones weight loss over the same period.

Examination shows goiter was palpable on examination. ECG confirmed atrial fibrillation. Investigations show:

TSH	0.15UI	(0.5-4.5 UI)
Free T4	42 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L
ESR	8 1st hour	< 10 1st hour
Anti-TPO	negative	

Radiiodine uptake shows a hot nodule in the right lobe.

What is the most likely diagnosis?

- ☐ Thyroid lymphoma
- ☒ Toxic thyroid nodule
- ☐ Thyroid carcinoma
- ☒ Graves' disease
- ☐ Hashimoto thyroiditis

Description

Toxic thyroid nodule is associated with hyperthyroidism and hot nodule without any palpable neck masses. Thyroid carcinoma is associated with elevated ESR and usually the mass is a cold nodule.

Radioactive iodine uptake is increased and is diffusely distributed over the entire gland in Graves' disease and antibodies are positive.

CHECK ANSWER

END SESSION

NEXT

Question 90 of 191

Question Difficulty:

Easy

Mrs. X is complaining of increased abdominal swelling. Examination shows right pelvic mass and ascites. Ultrasound confirms the ovarian mass. CA-125 is elevated. She was suspected to have ovarian cancer.

Which of the following is not known to be a risk factor?

- ☐ Endometriosis
- ☐ Nulliparity
- ☒ Late menopause
- ☐ Hereditary non-polyposis colon cancer
- ☐ Late menarche

Description

Risk factors of ovarian cancer:

- Hereditary non-polyposis colon cancer (Lynch Syndrome)
- BRCA-1 and BRCA-2 genetic abnormalities
- Nulliparity
- Early menarche
- Late menopause
- Fertility medication
- Polycystic ovary syndrome
- Endometriosis

CHECK ANSWER

END SESSION

NEXT

Question 91 of 191

Question Difficulty:

Easy

Mr. X is complaining of persistent hypertension and obesity. She also complains of excessive pigmentation and headaches. Examination reveals proximal myopathy and hirsutism. Investigations show:

Serum sodium	142 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.56	(7.35-7.45)

Which of the following investigations to be requested to confirm diagnosis?

- ☒ 24 hours urinary free cortisol
- ☐ Midnight plasma ACTH
- ☐ Corticotrophin releasing hormone stimulation
- ☐ High-dose dexamethasone suppression test
- ☐ Pituitary MRI

Description

- ☒ 24 hours urinary free cortisol
- ☐ Midnight plasma ACTH
- ☐ Corticotrophin releasing hormone stimulation
- ☐ High-dose dexamethasone suppression test
- ☐ Pituitary MRI

Description

This patient has Cushing syndrome due to overweight, hypokalemic alkalosis. Overnight dexamethasone suppression test and 24 hours urinary free cortisol are used to confirm hypercortisolism.

CHECK ANSWER

END SESSION

NEXT

Question 92 of 191

Question Difficulty:

Hard

Mr. X with type 2 diabetes is complaining difficulty in controlling his blood glucose. His GP suggests self-monitoring by HbA1c measurement. What are the indications of self-monitoring of blood glucose levels for adults with type 2 diabetes?

- ☐ The patient is planning to become pregnant
- ☐ There is evidence of hypoglycemic episodes
- ☐ The patient is pregnant
- ☒ The patient is on triple oral therapy
- ☐ The patient is on insulin

Description

Indications of self-monitoring of blood glucose levels for adults with type 2 diabetes:

- The patient is on insulin
- There is evidence of hypoglycemic episodes
- The patient is on oral medication that may increase their risk of hypoglycemia while driving or operating machinery
- The patient is pregnant, or is planning to become pregnant

CHECK ANSWER

END SESSION

NEXT

Session Statistics

👤 Answered: 91

✓ Correct: 20

✗ Incorrect: 71

📊 Average Score: 21.98 %

Question 93 of 191

Question Difficulty:

Hard

7 years old boy is admitted with renal colic due to renal calculus. His mother has a similar history of recurrent calculi. Serial investigations show:

Serum calcium	2.4 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	0.9 mmol/L	(0.81 - 1.45 mmol/L)
PTH	2.8 pmol/l	0.9-5.4 pmol/l
Urinary calcium	621 mg/24h	25-300 mg/24h
Urinary phosphate	40 mmol/24h	13-42 mmol/24h

What is the management of choice?

- ☐ Bisphosphonates
- ☒ Thiazide diuretic
- ☐ Follow up
- ☒ Alfacalcidol
- ☐ Phosphate binders

Description

This patient has idiopathic hypercalcaemia. It is an autosomal-dominant disorder occurs due to excessive gastrointestinal absorption of dietary calcium and a defect in renal tubular calcium absorption causing hypercalcaemia (renal stones) without hypercalcaemia.

Management is decreasing urinary calcium excretion by oral thiazide diuretics and decrease oral intake of calcium.

CHECK ANSWER

END SESSION

NEXT

Question 94 of 191

Question Difficulty:

Easy

Mr. X was admitted to the Emergency department due to nausea, vomiting and malaise. He has recent history of viral upper respiratory tract infection. He has a history of type 1 diabetes managed by basal bolus insulin regime.

Examination shows BMI 21, BP is 100/65 mmHg, pulse is 95 and regular and he has a respiratory rate of 28. Investigations show:

Serum creatinine	125 mmol/L	(53-106 mmol/L)
Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	3.8 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	14 mmol/L	(22-28 mmol/L)
Anion gap	18 mmol/l	(8-16 mmol/l)
pH	7.25	(7.35-7.45)
Random glucose	26 mmol/l	

Which of the following should not be used while treating him?

- ☐ Insulin
- ☐ IV Fluids
- ☒ Bicarbonate
- ☒ Potassium
- ☐ Antibiotics

Description

This patient has Diabetic ketoacidosis (DKA). American Diabetes Association (ADA) diagnostic criteria of diabetes ketoacidosis:

- Blood glucose >13.8 mmol/l
- pH < 7.30
- Serum bicarbonate <18 mmol/l
- Anion gap > 10
- Ketonemia

Management lines include:

- Fluid resuscitation by 5-8 liters of isotonic saline followed by dextrose
- Reduction in the plasma glucose concentration to normal by intravenous infusion of 0.1 unit/kg/hour of insulin
- Correction of hypokalemia
- Intravenous bicarbonate only if serum bicarbonate is <7 mmol/l (life threatening acidemia)
- Prophylaxis against deep vein thrombosis

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 93

✓ Correct: 20

✗ Incorrect: 73

Average Score: 21.51 %

Question 95 of 191

Question Difficulty:

Easy

34 years Mrs. X was seeking medical advice about failure to conceive. She reports disturbed menses and she is overweight and is having to shave or pluck excessive facial hair. Investigations show:

LH	12 IU/L	1-20 IU/L
FSH	9 IU/L	1-20 IU/L
Serum prolactin	45 ng/L	2-29 ng/mL
Testosterone	4 nmol/l	< 2.5 nmol/l
TSH	2.6 U/l	(0.5-4.5 U/l)
Fasting glucose	6 mmol/L	3.5-5.5 mmol/L

What is the most likely diagnosis?

- ☐ Type 2 diabetes
- ☒ Polycystic ovarian syndrome
- ☐ Hyperprolactinemia
- ☐ Androgen-secreting tumor
- ☒ Cushing disease

Description

Polycystic ovarian syndrome (PCOS) occurs due to abnormalities in the metabolism of androgens and estrogen and in the control of androgen production.

It is manifested by hirsutism, acne, infertility, oligomenorrhea, amenorrhea, obesity and metabolic syndrome. Lab findings include:

- Raised LH:FSH ratio (>1)
- Prolactin level is mildly elevated
- Testosterone, dehydroepiandrosterone and androstenedione levels are mildly elevated
- Sex hormone binding globulin is low
- Impaired glucose tolerance

CHECK ANSWER

END SESSION

NEXT

Question 96 of 191

Question Difficulty:

Easy

20 years Miss X who is complaining of sweating, weight loss and palpitations for 4 months. Her mother was diagnosed to have thyroid cancer which was managed by total thyroidectomy.

Examination reveals BP is 145/90 mmHg, pulse is 110/min at rest and BMI of 20. There is no noted neck lump.

Investigations show:

Hemoglobin	14 g/dL	13.5-17.5 g/dL
WBC	8 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
ESR	6 1st hour	< 10 1st hour
TSH	0.05U/l	(0.5-4.5 U/l)
Free T4	36 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L
Anti-TPO	negative	
Thyroglobulin	Decreased	

Thyroid scintigraphy reveals decreased uptake.

TSH	0.05U/l	(0.5-4.5 U/l)
Free T4	36 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L
Anti-TPO	negative	
Thyroglobulin	Decreased	

Thyroid scintigraphy reveals decreased uptake.

What is the most likely diagnosis?

- ☐ Acute bacterial thyroiditis
- ☒ Thyrotoxicosis factitia
- ☐ Hashimoto thyroiditis
- ☐ Graves' disease
- ☒ Subacute thyroiditis

Description

Thyrotoxicosis factitia is thyrotoxicosis caused by the ingestion of exogenous thyroid hormone especially who are trying to lose weight. The patient has access to thyroid hormone treatment from her mother.

It is manifested by decreased TSH with elevated T4 levels, decreased thyroglobulin level (unlike thyroiditis and other causes of hyperthyroidism) and globally decreased radioactive iodine uptake.

Elevated ESR excludes subacute thyroiditis and bacterial thyroiditis. Negative antibodies exclude Graves' disease and Hashimoto thyroiditis.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 95

Correct: 20

Incorrect: 75

Average Score: 21.05
%

Question 97 of 191

Question Difficulty:

Hard

40 years Mrs. X is suffering from one year history of irregular periods, deteriorating hirsutism and weight gain. Investigations show:

LH	12 IU/L	1-20 IU/L
FSH	9 IU/L	1-20 IU/L
Serum prolactin	45 ng/L	2-29 ng/mL
Testosterone	4 nmol/l	< 2.5 nmol/l
TSH	2.6 U/l	(0.5-4.5 U/l)
Fasting glucose	6 mmol/L	3.5-5.5 mmol/L

Which of the following investigations would be diagnostic?

- ☐ Abdominal CT
- ☒ Pelvic ultrasound
- ☒ Sex hormone binding globulin
- ☐ Dehydroepiandrosterone
- ☐ MRI brain

Description

This lady has manifestations of polycystic ovarian syndrome. Dehydroepiandrosterone and androstenedione levels are mildly elevated. Sex hormone binding globulin is low.

Pelvic ultrasound is diagnostic; it shows multiple cysts on the ovaries.

CHECK ANSWER

END SESSION

NEXT

Question 98 of 191

Question Difficulty:

Easy

Mr. X who was diagnosed with type 2 diabetes mellitus presents for review. His current medication is metformin 500mg tds. During his annual review he was noted to have the following results:

Total cholesterol	8.3 mmol/L	< 5.2 mmol/L
Triglyceride	1.7 mmol/L	< 1.7 mmol/L
High-density lipoprotein (HDL)	1 mmol/L	< 1.03 mmol/L
Low-density lipoprotein (LDL)	2.5 mmol/L	< 1.3 mmol/L
HbA1c	47 mmol/mol (6.4%)	

Which of the following actions should be taken?

- ☐ Add gliclazide
- ☐ Increase metformin dose
- ☐ Nicotinic acid
- ☒ Lifestyle advice, repeat lipid profile in 3 months
- ☐ Start atorvastatin

Description

This patient has a high-risk lipid profile and should therefore be offered statin therapy.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 97

Correct: 20

Incorrect: 77

Average Score: 20.62%

Question 99 of 191

Question Difficulty:

Hard

10 years old boy is complaining of thirst and lethargy. He has a dizygotic twin diagnosed with diabetes 2 years ago. His investigations show:

Serum amylase	180 U/L	(25-125 U/L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Leukocyte count	9 X10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
Fasting plasma glucose	8.0 mmol/L	
2-hour plasma glucose	11.8 mmol/L	

What is the management of choice?

- ☐ Pioglitazone
- ☐ Glicazide
- ☒ Continuous subcutaneous insulin infusion
- ☐ Acarbose
- ☐ Metformin

Description

This patient has type 1 diabetes. Lifelong insulin therapy by continuous subcutaneous insulin infusion (2008 NICE guidelines) is the management of choice. Allogeneic pancreatic islet cell transplantation should be considered.

CHECK ANSWER

END SESSION

NEXT

Question 100 of 191

Question Difficulty:

Hard

Mr. X is complaining of headaches, polyuria and polydipsia of recent onset. He had a recent history of multiple cerebral metastases due to a lung cancer.

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Serum sodium	150 mmol/L	(136-145 mmol/L)
Serum potassium	3.6 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)
Plasma osmolality	298 mmol/ kg	(275-295 mmol/kg)
Urine osmolality	280 mmol/ kg	(500-800 mmol/kg)
Fasting glucose	4.5 mmol/l	(3-6 mmol/l)

A water deprivation test is performed with the following results after DDAVP administration:

Plasma osmolality	307 mmol/ kg	(275-295 mmol/kg)
Urine osmolality	720 mmol/ kg	(500-800 mmol/kg)

What is the management of choice?

Plasma osmolality	307 mmol/ kg	(275-295 mmol/kg)
Urine osmolality	720 mmol/ kg	(500-800 mmol/kg)

What is the management of choice?

- ☐ Fluid restriction
- ☐ Amiloride
- ☒ Subcutaneous desmopressin
- ☒ Hydrochlorothiazide
- ☐ Indomethacin

Description

This patient has cranial diabetes insipidus. Diabetes insipidus is an uncommon disease characterized by polydipsia and polyuria of large quantities of urine with high plasma osmolality, low urine osmolality and hypernatremia.

In vasopressin challenge test, cranial diabetes insipidus causes a dramatic improvement in urine osmolality (> 50%) following the administration of DDAVP.

Desmopressin acetate in the form of nasal spray or subcutaneous injections is the treatment of choice for central diabetes insipidus.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 99

Correct: 20

Incorrect: 79

Average Score: 20.2 %

Question 101 of 191

Question Difficulty:

Average

50 years Mrs. X is complaining of vaginal dryness. She is a postmenopausal for 6 years. She had never complained of facial flushing.

What is the management of choice?

- ☐ Vaginal estrogen
- ☐ Oral estrogen
- ☒ Oral estrogen and progestogen
- ☐ Vaginal lubricants
- ☐ Vaginal progestogen

Description

Hormone replacement therapy primarily indicated to control of vasomotor symptoms. It is only indicated for management of vaginal atrophy if topical measures fail.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered: 100

✓ Correct: 20

✗ Incorrect: 80

📊 Average Score: 20 %

Question 102 of 191

Question Difficulty:

Hard

Mr. X with a history of type 2 diabetes was referred due to elevated blood pressure to 160/100 mmHg. What is the management of choice for his blood pressure?

- ☐ Hydrochlorothiazide with target 130/80 mmHg
- ☐ Ramipril with target 130/80 mmHg
- ☒ Ramipril with target 140/80 mmHg
- ☐ Nifedipine with target 130/80 mmHg
- ☐ Furosemide with target 130/80 mmHg

Description

The target of blood pressure in type 2 diabetes should be below 140/80 mmHg or below 130/80 mmHg if there is kidney, eye or cerebrovascular damage.

Angiotensin-converting enzyme (ACE) inhibitor is the antihypertensive drug of choice in type 2 diabetes. It is contraindicated in African or Caribbean family origin, pregnant or there is a possibility of pregnancy. Diuretics or calcium-channel blockers are alternatives.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 101

✓ Correct: 20

✗ Incorrect: 81

Average Score: 19.8 %

Question 103 of 191

Question Difficulty:

Average

Mr. X was seeking medical advice about recent weight gain. He was recently diagnosed to have diabetes and hypertension and has a long history of visual disturbance.

Examination reveals obesity especially in the face, supraclavicular region, upper back, and torso with skin thinning, hirsutism and bruising. There is gynaecomastia. Investigations show:

Hemoglobin	13 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	6.2 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	142 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.56	(7.35-7.45)

Which of the following would cause his symptoms?

- ☐ Conn syndrome
- ☐ Adrenal adenoma
- ☐ Adrenal carcinoma
- ☐ Nelson syndrome
- ☒ Benign pituitary adenoma

Description

This patient has Cushing syndrome with overweight, hypokalemic alkalosis. He has features of increased ACTH with hirsutism and virilization. The long history of visual disturbance points to pituitary adenoma. Benign pituitary adenoma causes 70% of cases.

CHECK ANSWER

END SESSION

NEXT

Question Difficulty:

Easy

Mr. X was referred to the endocrinology clinic with polydipsia. Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Serum sodium	150 mmol/L	(136-145 mmol/L)
Serum potassium	3.6 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)
Plasma osmolality	298 mmol/kg	(275-295 mmol/kg)
Urine osmolality	280 mmol/kg	(500-800 mmol/kg)
Fasting glucose	4.5 mmol/l	(3-6 mmol/l)

A water deprivation test is performed with the following results after DDAVP administration:

Plasma osmolality	307 mmol/kg	(275-295 mmol/kg)
Urine osmolality	720 mmol/kg	(500-800 mmol/kg)

What is the most likely diagnosis?

Plasma osmolality	307 mmol/kg	(275-295 mmol/kg)
Urine osmolality	720 mmol/kg	(500-800 mmol/kg)

What is the most likely diagnosis?

- ☒ Cranial diabetes insipidus
- ☐ Nephrogenic diabetes insipidus
- ☐ Primary hyperparathyroidism
- ☐ Psychogenic polydipsia
- ☐ Pseudohypoparathyroidism

Description

This patient has diabetes insipidus. Diabetes insipidus is an uncommon disease characterized by polydipsia and polyuria of large quantities of urine with high plasma osmolality, low urine osmolality and hyponatremia.

In vasopressin challenge test, cranial diabetes insipidus causes a dramatic improvement in urine osmolality (> 50%) following the administration of DDAVP. In nephrogenic diabetes insipidus there is no or little response (< 45%) in urine osmolality.

Question 105 of 191

Question Difficulty:

Easy

Mr. X is complaining of polyuria and polydipsia. Examination showed a BMI of 32 and blood pressure of 160/100 mmHg. Fundoscopic examination showed dot and blot hemorrhage.

His investigations show fasting plasma glucose of 7.5 mmol/l and 2 h glucose of 11.4 mmol/l.

What is the most likely diagnosis?

- ☐ -
- ☐ Impaired oral tolerance test
- ☒ Type 2 diabetes
- ☐ Type 1 diabetes
- ☐ Impaired fasting glucose

Description

This patient shows the ADA criteria for the diagnosis of diabetes:

- Fasting plasma glucose of 7.0 mmol/L or higher
- 2-hour plasma glucose level after oral glucose tolerance test of 11.1 mmol/L
- Random plasma glucose of 11.1 mmol/L or higher
- HbA1c level of 6.5% or higher

Microvascular and macrovascular complications are present many years before diagnosis of type 2 unlike type 1.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 104

✓ Correct 21

✗ Incorrect 83

Average Score: 20.19 %

Question 106 of 191

Question Difficulty:

Easy

Mr. X is complaining of intermittent palpitations associated with facial flushing.

Examination shows facial telangiectasia, pedal edema, elevated JVP. There is widespread polyphonic expiratory wheeze and pansystolic murmur on chest auscultation. There is moderate hepatomegaly. Investigations show:

Serum creatinine	102 mmol/L	(53-106 mmol/L)
Bilirubin	14 µmol/L	(2-17 µmol/L)
ALT	150 U/L	(8-20 U/L)

Which of the following tests is diagnostic?

- ☐ Abdominal CT
- ☐ Urinary serotonin
- ☒ 24-hour urinary 5- hydroxyindoleacetic acid
- ☒ Serum chromogranin A
- ☐ Urinary histamine

Which of the following tests is diagnostic?

- ☐ Abdominal CT
- ☐ Urinary serotonin
- ☒ 24-hour urinary 5- hydroxyindoleacetic acid
- ☒ Serum chromogranin A
- ☐ Urinary histamine

Description

This patient has malignant carcinoid syndrome. It is manifested by flushing of the face, severe diarrhoea, asthma attacks and hypotension.

Tricuspid regurgitation and pulmonary stenosis are less common. Liver metastasis and cirrhosis are common.

Elevated 24-hour urinary 5- hydroxyindoleacetic acid (HIAA) is diagnostic. Serum chromogranin A has 100% sensitivity but specificity is lower than for 5-HIAA. Bioactive amines as serotonin, catecholamines and histamine in serum and urine are less diagnostic.

Question 107 of 191

Question Difficulty:

Easy

Mrs. X is complaining of palpitations, weight loss and heat intolerance for 4 weeks. Examination reveals smooth and diffusely enlarged thyroid gland. There is orange peel skin on both shins.

ECG shows atrial fibrillation. Investigation shows:

TSH	0.05U/l	(0.5-4.5 U/l)
Free T4	36 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L

Radioactive iodine uptake is increased and is diffusely distributed over the entire gland.

What is the most likely diagnosis?

- ☐ Toxic multinodular goiter
- ☒ Graves' disease
- ☐ Subclinical hyperthyroidism
- ☐ Hashimoto thyroiditis
- ☒ Riedel thyroiditis

Description

Graves' disease is an autoimmune disease characterized by hyperthyroidism due to circulating autoantibodies. Pretibial myxedema (orange peel skin on both shins) is specific for the diagnosis.

Hashimoto thyroiditis is associated with hypothyroidism with an insidious onset. Toxic multinodular goiter is radioiodine uptake shows patchy uptake with areas of increased and decreased uptake.

CHECK ANSWER

END SESSION

NEXT

Question 108 of 191

Question Difficulty:

Average

45 years Mrs. X was complaining of vaginal discharge. On further questioning there has been a history of increasing abdominal distension and bloating over the past few months.

Examination shows right pelvic mass and ascites. Ultrasound confirms the ovarian mass.

Which of the following investigations would be diagnostic?

- ☐ Pelvic CT scanning
- ☐ CA-125
- ☒ Laparotomy and biopsy
- ☐ FNA biopsy
- ☐ Pelvic ultrasonography

Description

His patient is suffering from ovarian cancer. Diagnostic procedures include:

- Tumor marker CA-125 is elevated but not specific
- Pelvic ultrasonography and CT scanning for staging
- Laparotomy and biopsy is superior to fine-needle aspiration (FNA) or percutaneous biopsy for diagnosis
- Diagnostic paracentesis for ascites

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered 107

✓ Correct 22

✗ Incorrect 85

📈 Average Score: 20.56 %

Question 109 of 191

Question Difficulty:

Hard

62 years Mrs. X is complaining of painless increasing mass in the left breast associated with bloody nipple discharge. The skin over the mass has an orange-skin appearance. A diagnosis of breast cancer is strongly suspected.

Which of the following would suggest good prognostic sign of breast cancer?

- ☐ High histological grading
- ☒ Her age
- ☐ Lymph node metastases
- ☐ Estrogen receptor-negative tumor
- ☐ Size of the tumor

Description

Poor prognostic factors of breast cancer:

- Young age (< 40 years)
- Premenopausal at diagnosis
- Large tumor size
- High tumor grade
- Estrogen and progesterone receptor-negative tumor
- Positive lymph nodes

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 108

✓ Correct 23

✗ Incorrect 85

Average Score: 21.3 %

Question 110 of 191

Question Difficulty:

Hard

Mr. X with a long history of renal failure and hemodialysis is complaining of increasing tiredness and polyuria. Serial investigations show:

Serum calcium	2.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	1.6 mmol/L	(0.81 - 1.45 mmol/L)
PTH	115.5 pmol/l	0.9-5.4 pmol/l

What is the management of choice?

- ☐ Calcium acetate
- ☐ Calcium carbonate
- ☒ Total parathyroidectomy
- ☐ Cinacalcet
- ☐ Sevelamer

Description

This patient has tertiary hyperparathyroidism. It is an autonomous hypersecretion of parathyroid hormone (hyperplastic glands) after longstanding secondary hyperparathyroidism (most often after renal transplantation).

It is manifested by hypercalcaemia and profound hyperparathyroidism. Management is by total parathyroidectomy.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 109

Correct: 23

Incorrect: 86

Average Score: 21.1 %

Question 111 of 191

Question Difficulty:

Easy

18 years old teen is seeking a medical advice as wants to start a relationship but he is concerned about his small penis and delayed pubertal development.

Examination reveals that his height was above average, his has a small penis and testicular volumes was 2 mL bilaterally and no pubic hair.

Investigations show:

Serum prolactin	15 ng/L	Men 2-18 ng/mL
Serum growth hormone	2 ng/mL	Men: < 5 ng/mL
TSH	2 UI	(0.5-4.5 UI)
LH	20.6 IU/L	Males 1-10 IU/L
FSH	16.4 IU/L	Males 1-7 IU/L
Testosterone	60 ng/dL	240-950 ng/dL

What is the most likely diagnosis?

- ☒ Klinefelter syndrome
- ☐ Marfan syndrome
- ☐ Noonan syndrome
- ☐ Andropause
- ☐ Kallmann syndrome

Description

Klinefelter syndrome is XXY syndrome occurs as the result of chromosomal non-disjunction causing male hypogonadism and infertility. It is manifested by infertility, gynecomastia, lack of secondary sexual characteristics and small firm testes.

Klinefelter syndrome is associated with elevated gonadotropin levels FSH, LH with decreased testosterone levels (hypogonadotropic hypogonadism) unlike Kallmann syndrome (hypogonadotrophic hypogonadism).

CHECK ANSWER

END SESSION

NEXT

Question 112 of 191

Question Difficulty:

Easy

50 years postmenopausal Mrs. X was diagnosed to have osteoporosis. She had never complained of postmenopausal vasomotor symptoms. What is the management of choice?

- ☒ Alendronates
- ☐ Oral estrogen and calcium and vitamin D
- ☐ Oral progestogen
- ☐ Oral estrogen and progestogen
- ☐ Alendronates and oral estrogen

Description

Hormone replacement therapy primarily indicated to control of vasomotor symptoms. It is only indicated for management of osteoporosis as second-line treatment.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 111

✓ Correct 24

✗ Incorrect 87

Average Score: 21.62 %

Question 113 of 191

Question Difficulty:

Hard

Mr. X is complaining of complaining of loss of libido and impotence for 6 months. He has no past medical history and he is alcohol addict.

Examination of his nipples reveals milk discharge. Neurological examination reveals visual field defects. Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Hemoglobin	15 g/dL	(Male: 13.5-17.5 g/dL)
MCV	98 fl	80-100 fl
Leukocyte count	7 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Serum growth hormone	3.5 ng/mL	Men: < 5 ng/mL
Serum prolactin	2900ng/L	Men 2-18 ng/mL

What is the most likely diagnosis?

- ☐ Macroprolactinoma
- ☐ Compression of pituitary stalk
- ☒ Microprolactinoma
- ☒ Alcohol abuse
- ☐ Craniopharynglioma

Description

Prolactinoma is the most common hormone-secreting pituitary tumor. It is manifested by tiredness and lack of sexual interest in males. Visual field defects are associated with suprasellar extension of the tumor which compresses the optic chiasm.

Serum prolactin range from 1500 mu/l to 3000 mu/l in patients with microprolactinoma and levels exceeds 3000 mu/l in those with macroprolactinoma.

CHECK ANSWER

END SESSION

NEXT

Question 114 of 191

Question Difficulty:

Average

Mr. X presents as his wife has noticed a change in his appearance. He has also noticed his hands seem larger. His serum growth hormone was 4.6 ng/mL (< 5 ng/mL). Brain MRI shows 0.5 CM pituitary adenoma.

What is the management of choice?

- ☐ Octreotide
- ☐ External irradiation
- ☒ Bromocriptine
- ☐ Trans-sphenoidal surgery
- ☐ Pegvisomant

Description

This patient has pituitary adenoma causing acromegaly. Trans-sphenoidal surgery is first-line treatment for acromegaly in the majority of patient even for small sized tumors.

Second line management includes:

- Somatostatin analogue (octreotide) is effective in reducing GH and shrinking tumor size
- Dopamine agonists (bromocriptine, cabergoline) are less effective than somatostatin analogue, they can be used in tumors that secrete both PRL and GH
- Pegvisomant is a GH receptor antagonist that blocks hepatic IGF-1 production, it decreases IGF-1 levels in 90% of patients to normal, but it doesn't reduce tumor volume
- External irradiation is used for older patients or following failed surgical/medical treatment

CHECK ANSWER

END SESSION

NEXT

Question 115 of 191

Question Difficulty:

Hard

Mrs. X is suffering from nausea, thirst and dehydration for 2 months. She has a family history of a mother that has gastric tumor and a brother who has recently been diagnosed with an insulinoma. Her investigations show:

Serum creatinine	88 mmol/L	(53-106 mmol/L)
Hemoglobin	13 g/dL	10.5-12.5 g/dL
Leukocyte count	8.2 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.8 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	0.6 mmol/L	(0.81 - 1.45 mmol/L)
Serum growth hormone	10.5 ng/mL	< 10 ng/mL
Serum prolactin	2270 ng/L	2-19 ng/mL

Which of the following is the most likely cause of her raised calcium?

- ☐ MEN 2a
- ☐ Secondary hyperparathyroidism
- ☐ MEN 2b
- ☐ Familial hypocalcemic hypocalciuria
- ☒ Parathyroid adenoma

Description

This patient has manifestations and family history of multiple endocrine neoplasia type 1 as:

- Parathyroid tumors that cause hyperparathyroidism and hypercalcemia
- Pituitary tumors as prolactinoma
- Pancreatic tumors as gastrinoma (Zollinger-Ellison syndrome), insulinoma and carcinoid tumors
- Cutaneous tumors as angiofibroma and lipoma

CHECK ANSWER

END SESSION

NEXT

Question 116 of 191

Question Difficulty:

Easy

Mr. X is admitted with acute abdomen and confusion. He has a background of pulmonary fibrosis and is on management with corticosteroids and oxygen.

Examination shows temp of 40 C and blood pressure of 80/50 mmHg. Investigations show:

Leukocyte count	$4.2 \times 10^9 / L$	$(4.0-11.0 \times 10^9 / L)$
Serum creatinine	110 mmol/L	(53-106 mmol/L)
Serum sodium	128 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.25	(7.35-7.45)

What is the management of choice?

- ☐ Antipyretics
- ☒ IV hydrocortisone
- ☐ Oral prednisolone
- ☐ IV thyroxin
- ☐ IV bicarbonate

Description

This patient has adrenal crisis probably due to corticosteroids withdrawal. Adrenal insufficiency is manifested by hyponatremia, hyperkalemia and metabolic acidosis associated with hypoglycemia and hypotension. Adrenal crisis is manifested by nausea, vomiting, shock, cyanosis, acute abdomen and hyperpyrexia.

Management includes infusion of isotonic sodium chloride and glucose and immediate IV hydrocortisone.

CHECK ANSWER

END SESSION

NEXT

Question 117 of 191

Question Difficulty:

Hard

Mr. X is suffering from headaches and palpitations for 4 weeks. His GP reported elevated blood pressure that was difficult to treat. He has a history of total thyroidectomy due to medullary thyroid cancer.

Examination reveals BP of 160/110 mmHg with heart rate of 112 per minute. There are number of neuromas around his lips. LAB examinations were free. Abdominal CT scanning shows left adrenal mass. 24-hour urinary collection shows elevated catecholamines.

What is the most likely diagnosis?

- ☐ Carcinoid syndrome
- ☐ Multiple endocrine neoplasia type 1
- ☐ Multiple endocrine neoplasia type 2a
- ☒ Multiple endocrine neoplasia type 2b
- ☐ Cushing syndrome

Description

Multiple endocrine neoplasia type 2b is manifested by pheochromocytoma, medullary thyroid cancer and cutaneous neuroma.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered: 116

✓ Correct: 25

✗ Incorrect: 91

📈 Average Score: 21.55 %

Question 118 of 191

Question Difficulty:

Hard

Mr. X is reviewed for his last year diagnosed type 2 diabetes mellitus. Currently he takes metformin. His BMI is 33 kg/m² and his was HbA1c 61 mmol/mol (7.8%).

What is the preferred medication to be added?

- ☐ Insulin
- ☒ Sitagliptin
- ☐ Pioglitazone
- ☐ Glimeclamide
- ☐ Acarbose

Description

NICE suggests if HbA1c levels are not adequately controlled by a single drug and rise to 58 mmol/mol (7.5%) or higher: intensify drug treatment (First intensification with dual non-insulin drugs and Second intensification with triple non-insulin drugs or any treatment combination containing insulin).

Sulphonylurea and glitazones are contraindicated due to his weight. Sitagliptin does not affect weight.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 117

✓ Correct 26

✗ Incorrect 91

Average Score: 22.22 %

Question 119 of 191

Question Difficulty:

Easy

Mrs. X was admitted to the ED due to palpitations and fever. Examination reveals she has exophthalmos and orange peel skin on both shins. Neck examination reveals huge non-tender goiter. Investigation shows:

TSH	0.05U/l	(0.5-4.5 U/l)
Free T4	66 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L

Anti-TSH receptor stimulating antibodies test was positive and diagnosis of Graves' disease was done. She was planned to start radioactive iodine.

Of the given information, which of the following is a contraindication for starting radioactive iodine?

- ☐ Large goiter
- ☐ Thyrotoxicosis
- ☒ High levels of thyroxin
- ☐ Graves' ophthalmopathy
- ☐ High titers of antibodies

Description

Radioactive iodine may precipitate Graves' ophthalmopathy and is contraindicated. Indications for radioactive iodine:

- Large thyroid gland
- Symptoms of thyrotoxicosis
- High levels of thyroxin
- High titers of thyrotropin-receptor antibodies

CHECK ANSWER

END SESSION

NEXT

Question 120 of 191

Question Difficulty:

Easy

1. X is suffering from sudden onset severe retro-orbital headache, nausea and vomiting. Examination reveals BP of 90/60 mmHg. Neurological examination reveals right third and fourth nerve palsy.

Investigations show:

Serum creatinine	90 mmol/L	(53-106 mmol/L)
Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	3.8 mmol/L	(3.5-5.0 mmol/L)
Hemoglobin	12 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	9 X10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
Serum prolactin	950 ng/L	Men 2-18 ng/mL
Serum growth hormone	0.45 ng/mL	Men: < 5 ng/mL
TSH	0.02 UI	(0.5-4.5 UI)

What is the most likely diagnosis?

- ☐ Cerebral infarction
- ☒ Subarachnoid hemorrhage
- ☐ Pituitary apoplexy
- ☐ Pituitary adenoma
- ☐ Cluster headache

Description

Pituitary apoplexy is sudden enlargement of pituitary tumor secondary to hemorrhage or infarction. It is manifested by sudden onset headache, vomiting and neck stiffness with signs of pituitary compression causing visual field defects (optic chiasm compression) or cavernous sinus compression and extraocular nerve palsies.

Pituitary function tests show pituitary insufficiency (hypothyroidism, hypoadrogenism and hypocortisolism).

The rapid onset excludes pituitary tumors. The hormonal insufficiency excludes subarachnoid hemorrhage and cerebral infarction.

CHECK ANSWER

END SESSION

NEXT

Question 121 of 191

Question Difficulty:

Hard

Mr. X with a long history of dementia and depression is complaining of abdominal pain for 7 days. His investigations show:

Serum calcium	2.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	0.6 mmol/L	(0.81 - 1.45 mmol/L)
PTH	5.7 pmol/l	0.9-5.4 pmol/l
Serum creatinine	102 mmol/L	(53-106 mmol/L)

Abdominal ultrasound did not show any renal stones.

What is the management of choice?

- ☐ Cinacalcet
- ☐ Vitamin D
- ☒ Surgery
- ☐ Follow up
- ☐ Bisphosphonates

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- ☐ Follow up
- ☐ Bisphosphonates

Description

This patient has primary hyperparathyroidism is manifested by hypercalcemia, hypercalciuria, hypophosphatemia and elevated parathyroid hormone level (at the high end of the reference range).

Surgical excision of the abnormal parathyroid glands is the only permanent and curative treatment but this patient does not show any indications of surgical parathyroidectomy which are:

- Markedly elevated corrected serum calcium above 3 mmol/l
- Impaired renal function
- Renal stones
- Nephrocalcinosis
- Reduced bone mineral density

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 120

✓ Correct: 26

✗ Incorrect: 94

Average Score: 21.67 %

Question 121 of 191

Question Difficulty:

Hard

Mr. X with a long history of dementia and depression is complaining of abdominal pain for 7 days. His investigations show:

Serum calcium	2.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	0.6 mmol/L	(0.81 - 1.45 mmol/L)
PTH	5.7 pmol/l	0.9-5.4 pmol/l
Serum creatinine	102 mmol/L	(53-106 mmol/L)

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- Renal stones
- Nephrocalcinosis
- Reduced bone mineral density

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 120

✓ Correct: 26

✗ Incorrect: 94

Average Score: 21.67 %

Question 122 of 191

Question Difficulty:

Hard

Mr. X is complaining of cachexia and weight loss for 3 months. Examination of the neck reveals hard irregular nodule. There is no cervical and axillary lymph nodes enlargement. Investigations show:

TSH	3.2 U/l	(0.5-4.5 U/l)
Free T4	13 pmol/L	10 - 23 pmol/L
Free T3	4 pmol/L	3.5 - 6.5 pmol/L
ESR	88 1st hour	

Radioactive iodine shows cold thyroid nodule. Fine needle biopsy confirms papillary thyroid cancer diagnosis.

What is the management of choice?

- ☐ Total thyroidectomy followed by Chemotherapy
- ☐ Chemotherapy alone
- ☐ Total thyroidectomy and radiotherapy to lymph nodes
- ☒ Total thyroidectomy followed by radioiodine
- ☐ Total thyroidectomy and lymphatic dissection

Description

Papillary thyroid cancer is managed by total thyroidectomy followed by radioiodine and thyroxin replacement.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 121

Correct 26

Incorrect 95

Average Score: 21.49 %

Question 123 of 191

Question Difficulty:

Easy

Mr. X is complaining of cramping pain in his right calf for 3 months duration. Pain usually starts after walking a couple of blocks and was relieved after stopping for few minutes. He is a lifelong non-smoker and has a family history of cardiovascular disease. He consumes three to four units of alcohol every week.

Examination shows orange discoloration of skin creases and tuberoeruptive xanthoma on the knees. His lipid profile shows:

Total cholesterol	8 mmol/L	< 5.2 mmol/L
Triglyceride	13.6 mmol/L	< 1.70 mmol/L
High-density lipoprotein (HDL)	0.8 mmol/L	< 1.03 mmol/L
Low-density lipoprotein (LDL)	1.1 mmol/L	< 1.3 mmol/L

What is the most likely diagnosis?

- ☐ Chylomicronemia
- ☐ Familial hypertriglyceridemia
- ☐ Hypoalphalipoproteinemia
- ☒ Type III hyperlipoproteinemia
- ☐ Familial hypercholesterolemia

Description

Hyperlipoproteinemia type III is manifested by:

- Palmar xanthoma (orange discoloration of skin creases)
- Tuberoeruptive xanthoma on the elbows and knees
- Early onset of cardiovascular disease and peripheral vascular disease
- Hypercholesterolemia (8-12 mmol/L), hypertriglyceridemia (5-20 mmol/L) and normal high density lipoprotein

CHECK ANSWER

END SESSION

NEXT

Question 124 of 191

Question Difficulty:

Hard

14 years Miss X is referred with primary amenorrhoea. Examination reveals full grown secondary sexual characters. Investigations show:

LH	22 IU/L	1-20 IU/L
FSH	9 IU/L	1-20 IU/L
Serum prolactin	20 ng/L	2-29 ng/mL
Testosterone	14 nmol/l	<2.5 nmol/l

Which of the following investigations would be diagnostic?

- ☐ Abdominal CT
- ☒ Chromosomal analysis
- ☒ Brain MRI
- ☐ Abdominal ultrasound
- ☐ Digital rectal examination

- ☐ Abdominal CT
- ☒ Chromosomal analysis
- ☒ Brain MRI
- ☐ Abdominal ultrasound
- ☐ Digital rectal examination

Description

This patient has androgen insensitivity syndrome (testicular feminization). It is an X-linked recessive condition resulting in genotypically male children to have a female phenotype.

It is manifested by primary amenorrhoea, undescended testes causing inguinal mass and gynecomastia and impaired phallic growth.

LAB findings show elevated serum testosterone, estradiol and LH. Buccal smear for chromosomal analysis is diagnostic (XX chromosomes).

Question 125 of 191

Question Difficulty:

Easy

Mr. X is admitted with acute abdomen, hypotension and confusion 4 days after he was discharged after an uneventful management of meningococcal septicemia. Investigations show:

Leukocyte count	$4.2 \times 10^9 / L$	$(4.0 - 11.0 \times 10^9 / L)$
Serum creatinine	110 mmol/L	(53-106 mmol/L)
Serum sodium	128 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
Fasting glucose	2.8 mmol/L	3.5-5.5 mmol/L

Abdominal CT shows bilateral adrenal hemorrhage.

What is the most likely diagnosis?

- ☐ Conn syndrome
- ☐ SIADH
- ☒ Waterhouse-Friderichsen syndrome
- ☐ Psychiatric symptoms
- ☐ Primary hypoadrenalism

Description

Waterhouse-Friderichsen syndrome is bilateral adrenal hemorrhage occurring due to massive septicemia, often associated with severe, life-threatening meningococcal disease.

Adrenal insufficiency is manifested by hyponatremia, hyperkalemia and metabolic acidosis associated with hypoglycemia and hypotension.

CHECK ANSWER

END SESSION

NEXT

Question 126 of 191

Question Difficulty:

Hard

Mr. X with a history of multinodular goiter is complaining of tachycardia. His ECG reveals atrial fibrillation. Thyroid functions tests shows:

TSH	0.3 U/l	(0.5-4.5 U/l)
Free T4	12 pmol/L	10 - 23 pmol/L
Free T3	4 pmol/L	3.5 - 6.5 pmol/L
Total T4	140 nmol/L	58 - 161 nmol/L
Total T3	2.6 nmol/L	0.9-2.8 nmol/L

What is the management of choice?

- ☒ Low dose carbimazole for 6 months
- ☐ Levothyroxine for 6 months
- ☒ High dose carbimazole for 6 months
- ☐ Low dose corticosteroids for 6 months
- ☐ Follow up

Description

This patient is complaining of subclinical hyperthyroidism. It is a very mild form of hyperthyroidism. TSH levels are low but T3 and T4 levels are normal. It is may be caused by multinodular goiter or excessive thyroxin management.

Complications include atrial fibrillation, osteoporosis and dementia. Management includes low dose antithyroid drug for 6 months.

CHECK ANSWER

END SESSION

NEXT

Question 126 of 191

Question Difficulty:

Hard

Mr. X with a history of multinodular goiter is complaining of tachycardia. His ECG reveals atrial fibrillation. Thyroid functions tests shows:

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- ☐ Low dose corticosteroids for 6 months
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Description

This patient is complaining of subclinical hyperthyroidism. It is a very mild form of hyperthyroidism. TSH levels are low but T3 and T4 levels are normal. It is may be caused by multinodular goiter or excessive thyroxin management.

Complications include atrial fibrillation, osteoporosis and dementia. Management includes low dose antithyroid drug for 6 months.

CHECK ANSWER

END SESSION

NEXT

Question 127 of 191

Question Difficulty:

Average

Mr. X is suffering from painful neck enlargement, fever and palpitations 3 day after he completed a course of antibiotic for a common cold. Examination reveals a tender goiter. Investigations show:

Hemoglobin	14 g/dL	13.5-17.5 g/dL
WBC	8 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
ESR	42 1st hour	< 10 1st hour
TSH	0.05U/l	(0.5-4.5 U/l)
Free T4	36 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L
Anti-TPO	negative	

What is the most likely diagnosis?

- ☒ Subacute thyroiditis
- ☐ Toxic multinodular goiter
- ☐ Hashimoto thyroiditis
- ☐ Acute bacterial thyroiditis
- ☐ Graves' disease

Description

Subacute thyroiditis (De Quervain thyroiditis) is a transient inflammation (mostly viral) of the thyroid associated with a clinical course of hyperthyroidism due to increased release of stored thyroid hormone rather than increased production.

It is associated with painful goiter with raised ESR, and globally reduced radioactive iodine uptake.

CHECK ANSWER

END SESSION

NEXT

Question 128 of 191

Question Difficulty:

Easy

Mr. X is seeking an advice about any risk of heart disease. He has a common family history of myocardial infarction. Examination reveals tendon xanthomata around his ankles. His eye was shown in the image



What is the most likely classification of his hyperlipidemia?

- ☐ Abetalipoproteinemia
- ☐ Familial hypertriglyceridemia
- ☐ Chylomicronemia syndrome
- ☐ Remnant hypercholesterolemia
- ☒ Familial hypercholesterolemia

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- ☐ Familial hypertriglyceridemia
- ☐ Chylomicronemia syndrome
- ☐ Remnant hypercholesterolemia
- ☒ Familial hypercholesterolemia

Description

The image shows corneal arcus. It is white, grey, or blue opaque ring in the corneal margin. It is a common manifestation of familial hypercholesterolemia.

[CHECK ANSWER](#)[END SESSION](#)[NEXT](#)

Question 129 of 191

Question Difficulty:

Hard

Mr. X was admitted to the ED due to increasingly lethargic over the past month and recently complaining of confusion and disturbed consciousness. He was reported recently to put on some weight and constipation.

Examination reveals blood pressure of 125/98 mmHg, temperature 34 C, respiratory rate 6/min and oxygen saturations 80% on air. He has coarse facial features with dry skin and brittle nails. Investigations show:

Hemoglobin	10 g/dL	(Male: 11.5-13.5 g/dL)
Leukocyte count	9 X10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
Fasting glucose	2.5 mmol/l	(3-6 mmol/l)
TSH	10.2 U/l	(0.5-4.5 U/l)
Free T4	7 pmol/L	10 - 23 pmol/L

All the followings should be offered except?

- ☐ IV hydrocortisone
- ☐ IV thyroxin
- ☒ Mechanical ventilation
- ☒ Hospital admission
- ☐ Passive rewarming

Description

This patient has myxedema crisis. It is life-threatening form of untreated hypothyroidism with physiological decompensation. It is manifested by history of long-standing hypothyroidis, hypotension/shock, confusion, stupor, coma, slow speech and seizures.

Management includes mechanical ventilation if respiratory failure develops, immediate IV thyroid hormone replacement and passive rewarming.

CHECK ANSWER

END SESSION

NEXT

Question 130 of 191

Question Difficulty:

Hard

Mrs. X is complaining of increasing thirst and generalized abdominal pain. She was diagnosed with breast carcinoma three years previously, and treated with a radical mastectomy. Serial investigations show:

Serum calcium	3.5 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	0.8 mmol/L	(0.81 - 1.45 mmol/L)
PTH	0.5 pmol/l	0.9-5.4 pmol/l
Urinary calcium	423 mg/24h	25-300 mg/24h

Secretion of which of the following substances is most likely to be responsible for her symptoms?

- ☐ Calcitriol
- ☐ Calcitonin
- ☒ Parathyroid hormone-related peptide
- ☐ Osteoclast-activating cytokines
- ☒ Parathyroid hormone

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- ☐ Calcitonin
- ☒ Parathyroid hormone-related peptide
- ☐ Osteoclast-activating cytokines
- ☒ Parathyroid hormone

Description

This lady has malignancy-associated hypercalcaemia. Serum calcium levels are usually above 3 mmol/l. Mechanism of developing malignancy-associated hypercalcaemia includes:

- Tumor secretion of parathyroid hormone-related peptide (PTHrP)
- Excessive bone metastases

Question 131 of 191

Question Difficulty:

Hard

Mr. X is complaining of decreased libido and failure to maintain erection during intercourse. Examination shows has gynecomastia. Neurological examination was free.

Investigations show serum prolactin of 1270 ng/L. Brain MRI shows 0.9 CM hypodense area confined to the pituitary fossa.

What is the management of choice?

- ☐ Transphenoidal hypophysectomy
- ☐ Follow up
- ☒ Cabergoline
- ☐ Pituitary biopsy
- ☐ Radiotherapy

Description

This patient has microprolactinoma (Serum prolactin range from 1500 mu/l to 3000 mu/l and the size is < 1 CM). Microprolactinoma respond well to dopamine agonists (surgery in not indicated).

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered 130

✓ Correct 27

✗ Incorrect 103

📊 Average Score: 20.77 %

Question 132 of 191

Question Difficulty:

Average

Mr. X is complaining of 6 months history of galactorrhea. He has been receiving treatment for hay fever, depression, obesity and dyspepsia. Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Hemoglobin	15 g/dL	(Male: 13.5-17.5 g/dL)
MCV	98 fl	80-100 fl
Leukocyte count	7 X10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
Serum growth hormone	3.5 ng/mL	Men: < 5 ng/mL
Serum prolactin	190 ng/L	Men 2-18 ng/mL

Which one of his medications is most likely to be responsible?

- ☒ Fluoxetine
- ☒ Haloperidol
- ☐ Cimetidine
- ☐ Amitriptyline
- ☐ Omeprazole

Description

This patient has galactorrhea. Drug causes of raised prolactin include:

- Dopamine antagonist as metoclopramide, domperidone
- Phenothiazines
- Haloperidol
- SSRIs
- Opioids

CHECK ANSWER

END SESSION

NEXT

Question 133 of 191

Question Difficulty:

Easy

Mr. X was diagnosed to have type 2 diabetes. Examination showed a blood pressure of 160/100 mmHg. Fundoscopic examination showed dot and blot hemorrhage.

What is indicated blood pressure target?

- ☐ 140/90 mmHg
- ☒ 130/80 mmHg
- ☐ 130/75 mmHg
- ☒ 140/80 mmHg
- ☐ 120/80 mmHg

Description

The target of blood pressure in type 2 diabetes should be below 140/80 mmHg or below 130/80 mmHg if there is kidney, eye or cerebrovascular damage.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered 132

✓ Correct 27

✗ Incorrect 105

📊 Average Score: 20.45 %

Question 134 of 191

Question Difficulty:

Easy

Mr. X was referred from psychiatric clinic due to polyuria and polydipsia. Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Serum sodium	130 mmol/L	(136-145 mmol/L)
Serum potassium	3.6 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)
Plasma osmolality	275 mmol/kg	(275-295 mmol/kg)
Urine osmolality	420 mmol/kg	(500-800 mmol/kg)
Fasting glucose	5 mmol/l	(3-6 mmol/l)

A water deprivation test is performed with the following results after DDAVP administration:

Plasma osmolality	285 mmol/kg	(275-295 mmol/kg)
Urine osmolality	510 mmol/kg	(500-800 mmol/kg)

What is the most likely diagnosis?

- ☐ Nephrogenic diabetes insipidus
- ☐ Syndrome of inappropriate antidiuretic hormone
- ☐ Cranial diabetes insipidus
- ☒ Psychogenic polydipsia
- ☐ Primary hyperparathyroidism

Description

Psychogenic polydipsia (hysterical polydipsia) is a psychiatric disturbance due to a very large ingestion of water that causes a fall in plasma sodium and osmolality and a concomitant low urine osmolality. The changes in plasma and urine osmolalities following the test are not large.

CHECK ANSWER

END SESSION

NEXT

Question 135 of 191

Question Difficulty:

Hard

Mrs. X was diagnosed with type-2 diabetes 18 months previously and has been on treatment with metformin. Her BMI was 32.32 kg/m² and she was started dietary regimen and orlistat for weight reduction but 2 months later she remains obese with BMI of 32 kg/m².

Which of the following is correct with regard to obesity treatment?

- ☐ Diet and exercise should be discontinued
- ☐ Combinations of anti-obesity drugs should be started
- ☒ Orlistat should be discontinued
- ☐ Continue current regimen for 3 months
- ☐ Refer for bariatric surgery

Description

Orlistat should be discontinued if weight loss is < 5% at 3 months and 10% at 6 months. Bariatric surgery is indicated for people have a BMI > 40 kg/m² or people have a BMI between 35 kg/m² and 40 kg/m² with comorbidities.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered 134

✓ Correct 28

✗ Incorrect 106

📊 Average Score: 20.9 %

Question 136 of 191

Question Difficulty:

Hard

Mr. X is complaining of painless, palpable, solitary, hard and fixed thyroid nodule. He has a history of Hashimoto thyroiditis. Investigations show:

TSH	4.1 U/l	(0.5-4.5 U/l)
Free T4	12 pmol/L	10 - 23 pmol/L
Free T3	3.5 pmol/L	3.5 - 6.5 pmol/L
ESR	65 1st hour	

What is the management of choice?

- ☐ Total thyroidectomy followed by radioiodine
- ☐ Total thyroidectomy and lymphatic dissection
- ☐ Total thyroidectomy and radiotherapy to lymph nodes
- ☒ Chemotherapy
- ☐ Total thyroidectomy and thyroxin replacement

What is the management of choice?

- ☐ Total thyroidectomy followed by radioiodine
- ☐ Total thyroidectomy and lymphatic dissection
- ☐ Total thyroidectomy and radiotherapy to lymph nodes
- ☒ Chemotherapy
- ☐ Total thyroidectomy and thyroxin replacement

Description

Hashimoto thyroiditis causes thyroid Lymphoma. Thyroid Lymphoma is managed by chemotherapy.

CHECK ANSWER

END SESSION

NEXT

Question 136 of 191

Question Difficulty:

Hard

Mr. X is complaining of painless, palpable, solitary, hard and fixed thyroid nodule. He has a history of Hashimoto thyroiditis. Investigations show:

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What is the management of choice?

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- ☐ Total thyroidectomy and radiotherapy to lymph nodes
- ☒ Chemotherapy
- ☐ Total thyroidectomy and thyroxin replacement

Description

Hashimoto thyroiditis causes thyroid Lymphoma. Thyroid Lymphoma is managed by chemotherapy.

CHECK ANSWER

END SESSION

NEXT

Question 137 of 191

Question Difficulty:

Hard

Mrs. X was complaining of a palpable mass in the upper outer quadrant of the right breast. Examination shows no palpable axillary lymph nodes.

A biopsy is performed and the breast lesion is found to locally advanced adenocarcinoma. Staining for estrogen and progesterone receptors is negative.

What is the management of choice?

- ☐ Radical mastectomy with tamoxifen
- ☒ Radiation therapy with Anastrozole
- ☐ Radical mastectomy with trastuzumab
- ☐ Radiation therapy with cyclophosphamide
- ☐ Radical mastectomy

Description

Surgery and radiation therapy is of choice for early and locally advanced breast cancer. Chemotherapy is of choice for advanced breast cancer.

Endocrine therapy includes aromatase inhibitors (Anastrozole) for postmenopausal women or selective estrogen receptor modulators (tamoxifen) for premenopausal women are indicated as adjuvant therapy only for PR positive cancer.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 136

✓ Correct 30

✗ Incorrect 106

Average Score: 22.06 %

Question 138 of 191

Question Difficulty:

Easy

Mr. X is complaining of polyuria and polydipsia. Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Serum sodium	150 mmol/L	(136-145 mmol/L)
Serum potassium	3.6 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)
Plasma osmolality	311 mmol/kg	(275-295 mmol/kg)
Urine osmolality	460 mmol/kg	(500-800 mmol/kg)
Fasting glucose	9 mmol/l	(3-6 mmol/l)

What is the most likely diagnosis?

- ☒ Diabetes insipidus
- ☐ Chronic reflux nephropathy
- ☒ Diabetes mellitus
- ☐ Syndrome of inappropriate ADH secretion
- ☐ Psychogenic polydipsia

Description

Diabetes insipidus is an uncommon disease characterized by polydipsia and polyuria of large quantities of urine with high plasma osmolality, low urine osmolality and hyponatremia.

Diabetes mellitus causes polyuria and polydipsia without high plasma osmolality, low urine osmolality and hyponatremia.

Psychogenic polydipsia is a psychiatric disturbance that causes a fall in plasma sodium and osmolality and a concomitant low urine osmolality.

CHECK ANSWER

END SESSION

NEXT

Question 138 of 191

Question Difficulty:

Easy

Mr. X is complaining of polyuria and polydipsia. Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Serum sodium	150 mmol/L	(136-145 mmol/L)
Serum potassium	3.6 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)
Plasma osmolality	311 mmol/kg	(275-295 mmol/kg)
Urine osmolality	460 mmol/kg	(500-800 mmol/kg)
Fasting glucose	9 mmol/l	(3-6 mmol/l)

What is the most likely diagnosis?

- ☒ Diabetes insipidus
- ☐ Chronic reflux nephropathy
- ☒ Diabetes mellitus
- ☐ Syndrome of inappropriate ADH secretion
- ☐ Psychogenic polydipsia

Description

Diabetes insipidus is an uncommon disease characterized by polydipsia and polyuria of large quantities of urine with high plasma osmolality, low urine osmolality and hyponatremia.

Diabetes mellitus causes polyuria and polydipsia without high plasma osmolality, low urine osmolality and hyponatremia.

Psychogenic polydipsia is a psychiatric disturbance that causes a fall in plasma sodium and osmolality and a concomitant low urine osmolality.

CHECK ANSWER

END SESSION

NEXT

Question 139 of 191

Question Difficulty:

Hard

Mr. X is complaining of episodes of tremor, sweating and incoordination particularly when he first wakes in the morning. He checked his serum glucose during an episode which was record as being 1.4 mmol/L.

He was checked for his C-peptide level which was 1.5 ng/mL (> 2.5 ng/mL). His serum insulin level was of 14.5 μ U/mL (< 6 μ U/mL).

- ☒ Insulinoma
- ☐ Sulfonylurea misuse
- ☐ Glucagonoma
- ☐ Cushing syndrome
- ☐ Ectopic administration of insulin

Description

Ectopic administration of insulin, sulfonylurea misuse and insulinoma casue hypoglycemia. Ectopic administration of insulin is manifested by hyperinsulinemia with low C-peptide.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered 138

✓ Correct 30

✗ Incorrect 108

📊 Average Score: 21.74 %

Question 140 of 191

Question Difficulty:

Hard

Mr. was referred 3 months after a pituitary surgery complaining of feelings of lethargy, reduced energy and vitality. He reported an increased central abdominal adiposity and has reduced grip strength.

He is on management of thyroid and cortisol replacement. All investigations including CBC, urea and electrolytes and liver function tests are unremarkable.

Which of the following investigations to be requested?

- ☐ Insulin-like growth factor (IGF-1) levels
- ☐ MRI scan of the pituitary fossa
- ☒ Insulin tolerance test
- ☐ Glucose tolerance test
- ☐ Serum growth hormone

Description

This patient has manifestations of growth hormone deficiency. Level of growth hormone is not diagnostic as levels are nearly undetectable for most of the day. Low levels of insulin-like growth factor 1 (IGF-1) and IGF-binding protein 3 (IGFBP-3) are diagnostic but not specific.

Insulin tolerance test with growth hormone measurement is diagnostic; growth hormone releasing hormone (GHRH) testing is alternative.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 139

✓ Correct 30

✗ Incorrect 109

📊 Average Score: 21.58 %

Mr. X was admitted to the ED dehydrated, weak and in shock. He had previously been complaining of large stool volumes for a one month period. Stool color was normal.

He has no history of laxative abuse and no significant past medical history. Investigations Show:

Serum creatinine	108 mmol/L	(53-106 mmol/L)
Hemoglobin	14 g/dL	13.5-17.5 g/dL
Leukocyte count	$8 \times 10^9/L$	$(4.0-11.0 \times 10^9/L)$
Serum sodium	135 mmol/L	(136-145 mmol/L)
Serum potassium	3.1 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	88 mmol/L	(95-105 mmol/L)

Which of the followings should be checked for diagnosis?

- ☒ Serum insulin
- ☐ Serum chromogranin
- ☐ Urinary 5-HIAA
- ☐ Serum glucagon
- ☐ Serum vasoactive intestinal peptide

Description

This patient has VIPoma. It is a neuroendocrine tumor that secretes vasoactive intestinal peptide (VIP) autonomously. VIP promotes electrolyte, water and hormone secretion from the pancreas and gut, stimulates lipolysis, glycolysis and bile flow, and inhibits gastric acid secretion.

Hypokalemia and achlorhydria are electrolyte disturbances associated with VIPoma. High serum VIP is diagnostic.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 140

Correct: 30

Incorrect: 110

Average Score: 21.43 %

Question Difficulty:

Hard

Mr. X is complaining of fever and arrhythmia for 3 months. He has past medical history and he does not take any drugs except number of vitamin and mineral supplements including kelp.

Examinations reveal warm, moist, smooth skin and hand tremor. He has enlarged thyroid gland with no palpable nodules. Investigations show negative auto antibodies and normal ESR. Other investigations show:

TSH	0.2 U/I	(0.5-4.5 U/I)
Free T4	30 pmol/L	10 - 23 pmol/L
Free T3	12 pmol/L	3.5 - 6.5 pmol/L
Total T4	180 nmol/L	58 - 161 nmol/L
Total T3	3.6 nmol/L	0.9-2.8 nmol/L

What is the most likely diagnosis?

- ☒ Toxic multinodular goiter
- ☐ Subacute thyroiditis
- ☐ Graves' disease
- ☐ Iodine-induced thyrotoxicosis
- ☐ TSH secreting pituitary tumor

Description

This patient has signs of thyrotoxicosis. Kelp is rich for iodine and causes iodine-induced thyrotoxicosis with goiter. Normal ESR and negative autoantibodies exclude Graves' disease and subacute thyroiditis. TSH secreting pituitary tumor is associated with elevated TSH with elevated T4 and T3.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 141

Correct: 30

Incorrect: 111

Average Score: 21.28 %

Question Difficulty:

Average

Mr. X is complaining of tiredness, lethargy, sweats and weight loss over the past six months. He has a history of visual field defect and headache for a year.

Examinations reveal warm, moist, smooth skin and hand tremor. He has enlarged thyroid gland with no palpable nodules. Investigations show:

TSH	8.2 U/I	(0.5-4.5 U/I)
Free T4	30 pmol/L	10 - 23 pmol/L
Free T3	12 pmol/L	3.5 - 6.5 pmol/L
Total T4	180 nmol/L	58 - 161 nmol/L
Total T3	3.6 nmol/L	0.9-2.8 nmol/L

What is the most likely diagnosis?

- ☐ Iodide-induced thyrotoxicosis
- ☒ TSH secreting pituitary tumor
- ☐ Subacute thyroiditis
- ☒ Graves' disease
- ☐ Toxic multinodular goiter

Description

This patient has signs of hyperthyroidism. The history of headache and visual defects points to a pituitary tumor. TSH secreting pituitary tumor is associated with elevated TSH with elevated T4 and T3.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 142

Correct 30

Incorrect 112

Average Score: 21.13 %

Question 144 of 191

Question Difficulty:

Hard

32 Mr. X is complaining of failing to conceive after 6 years of marriage. He had a history of gynecomastia and he had breast reduction surgery 8 years ago.

Investigations show low serum testosterone and high serum LH. Chromosomal analysis shows XXY trisomy. His semen analysis shows azoospermia.

What is the procedure of choice for assessing fertility?

- ☐ Fertility is impossible
- ☐ Insulin stress test
- ☐ Testicular biopsy
- ☒ Adrenal gland biopsy
- ☐ Brain MRI

Description

This man has Klinefelter syndrome. It is XXY syndrome occurs as the result of chromosomal non-disjunction causing male hypogonadism and infertility. It is manifested by infertility, gynecomastia, lack of secondary sexual characteristics and small firm testes.

Induction of fertility is possible in Klinefelter syndrome by using IVF technology with surgically removed sperm material from males is possible if testicular biopsy shows sperms.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 143

✓ Correct: 30

✗ Incorrect: 113

Average Score: 20.98 %

Mr. X was admitted to the ED complaining of abdominal pain with vomiting. His past medical history includes hypothyroidism due to Hashimoto disease.

Examination shows temp of 37.6 C, pulse 110 bpm and blood pressure of 100/64 mmHg. His skin is pigmented with some areas of vitiligo. There is sparse axillary hair. Investigations show:

Hemoglobin	13 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	5.2 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	132 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.31	(7.35-7.45)

What is the most likely diagnosis?

- ☒ SIADH
- ☐ Primary hyperadrenalism
- ☐ Conn syndrome
- ☐ Psychiatric symptoms
- ☐ Hypothyroidism

Description

This patient has Addison. It disease is primary adrenocortical insufficiency due to autoimmune destruction of the adrenal glands (mostly by Anti-21 hydroxylase antibody) affecting glucocorticoid and mineralocorticoid function.

It is manifested by hyponatremia, hyperkalemia and metabolic acidosis associated with hypoglycemia and hypotension. There associated features of other autoimmune diseases as autoimmune hypothyroidism and vitiligo.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 144

✓ Correct: 30

✗ Incorrect: 114

Average Score: 20.83 %

Mr. X is suffering from slowly enlarging hard mass in the anterior neck with dysphonia, hoarseness and dysphagia for the past 6 month.

Thyroid function testing was ordered and showed:

TSH	12.3 U/I	(0.5-4.5 U/I)
Free T4	2 pmol/L	10 - 23 pmol/L
Free T3	1.5 pmol/L	3.5 - 6.5 pmol/L
Total T4	40 nmol/L	58 - 161 nmol/L
Total T3	0.6 nmol/L	0.9-2.8 nmol/L
Anti-Tg	negative	

Thyroid ultrasound reveals thyroid infiltration which spreads outside the capsule, and biopsy reveal dense infiltration of the gland.

What is the most likely diagnosis?

- ☒ Graves' disease
- ☐ Riedel thyroiditis
- ☐ Multi-nodular goiter
- ☐ Anaplastic thyroid carcinoma
- ☐ Hashimoto thyroiditis

Description

Riedel thyroiditis is a rare, chronic inflammatory disease of the thyroid gland characterized by a dense fibrosis that replaces normal thyroid parenchyma. It spreads to adjacent structures of the neck and extends beyond the thyroid capsule (unlike Hashimoto thyroiditis fibrosis).

It is a manifestation of systemic multifocal fibrosclerosis or due to IgG4-related systemic disease. Most patients are euthyroid (hypothyroidism in 30% of cases).

Thyroid auto antibodies are usually negative.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 145

Correct: 30

Incorrect: 115

Average Score: 20.69 %

Question 147 of 191

Question Difficulty:

Easy

Mr. X is admitted to the ED due to sudden onset severe frontal headache, nausea and vomiting. Examination reveals BP of 90/60 mmHg and bitemporal superior quadrantanopia on visual field testing. Investigations show:

Serum prolactin	840 ng/L	Men 2-18 ng/mL
Serum growth hormone	0.06 ng/mL	Men: < 5 ng/mL
TSH	0.03U/I	(0.5-4.5 U/I)
Testosterone	110 ng/dL	240-950 ng/dL

Which of the following investigation to be ordered immediately?

- ☒ Insulin stress test
- ☐ Urgent brain MRI
- ☐ Serum ACTH
- ☐ Urgent CSF analysis
- ☐ Urgent brain CT

Description

This patient has pituitary apoplexy. It is a sudden enlargement of pituitary tumor secondary to hemorrhage or infarction. It is manifested by sudden onset headache, vomiting and neck stiffness with signs of pituitary compression causing visual field defects (optic chiasm compression) or cavernous sinus compression and extraocular nerve palsies.

Pituitary function tests show pituitary insufficiency (hypothyroidism, hypoadrogenism and hypocortisolism).

Urgent brain MRI is of choice for diagnosis.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 146

✓ Correct: 30

✗ Incorrect: 116

Average Score: 20.55 %

has been suffering from a cold for a few days. Investigations show:

Serum creatinine	125 mmol/L	(53-106 mmol/L)
Serum sodium	150 mmol/L	(136-145 mmol/L)
Serum potassium	2.8 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	12 mmol/L	(22-28 mmol/L)
Anion gap	18 mmol/l	(8-16 mmol/l)
pH	7.15	(7.35-7.45)
Random glucose	36 mmol/l	

What is the most important initial management?

- ☐ Subcutaneous insulin
- ☐ Intubation
- ☒ Fluid and electrolytes
- ☐ Oxygen
- ☐ Intravenous insulin

Description

This patient has Diabetic ketoacidosis (DKA). American Diabetes Association (ADA) diagnostic criteria of diabetes ketoacidosis:

- Blood glucose >13.8 mmol/l
- pH < 7.30
- Serum bicarbonate <18 mmol/l
- Anion gap > 10
- Ketonemia

Management lines include:

- Fluid resuscitation by 5-8 liters of isotonic saline followed by dextrose
- Reduction in the plasma glucose concentration to normal by intravenous infusion of 0.1 unit/kg/hour of insulin
- Correction of hypokalemia
- Intravenous bicarbonate only if serum bicarbonate is <7 mmol/l (life threatening acidemia)
- Prophylaxis against deep vein thrombosis

CHECK ANSWER

END SESSION

NEXT

Question 149 of 191

Question Difficulty:

Easy

20 years nurse presents with frequent episodes of collapse. Blood glucose at the time was noted to be 1.4 mmol/L. Other blood tests were unremarkable. She was referred for prolonged fasting which showed serum insulin levels of 12 μ U/mL ($< 6 \mu$ U/mL).

Which of the following action should be taken?

- ☒ C-peptide levels
- ☐ Start octreotide
- ☐ Screening for sulfonylurea
- ☐ Abdominal CT
- ☐ Regular glucose infusion

Description

This patient shows signs of hyperinsulinemia. C-peptide levels should be requested to differentiate between ectopic administration of insulin where it is decreased or insulinoma where it is increased.

Screening for sulfonylurea is not indicated as it is not associated with hyperinsulinemia.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 148

✓ Correct: 31

✗ Incorrect: 117

Average Score: 20.95 %

Question 150 of 191

Question Difficulty:

Average

Mr. X was referred to endocrinology clinic due to recurrent oral candidal infections as the GP is concerned about Polyglandular autoimmune syndrome type I. He has a family history of an uncle who had total thyroidectomy.

Which one of the following would most suggest Polyglandular autoimmune syndrome type 1?

- ☒ Hypocalcaemia
- ☐ Type II diabetes mellitus
- ☒ Celiac disease
- ☐ Rheumatoid arthritis
- ☐ Hypercalcaemia

Description

Polyglandular autoimmune syndrome type I is featured by:

- Polyendocrinopathy (hypoparathyroidism and Addison disease)
- Chronic mucocutaneous candidiasis
- Ectodermal dystrophy

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered: 149

✓ Correct: 32

✗ Incorrect: 117

📊 Average Score: 21.48 %

Question 151 of 191

Question Difficulty:

Hard

Mr. X was admitted unconscious to the ED. Examination shows BP of 90/60 mmHg. Investigations show:

Serum prolactin	840 ng/L	Men 2-18 ng/mL
Serum growth hormone	0.06 ng/mL	Men: < 5 ng/mL
TSH	0.03 UI	(0.5-4.5 UI)
Testosterone	110 ng/dL	240-950 ng/dL

Urgent MRI showed a large hemorrhage compressing the pituitary gland.

What is the management of choice?

- ☒ Fluids resuscitation
- ☐ IV testosterone
- ☐ Cabergoline
- ☐ IV hydrocortisone
- ☐ Surgical decompression of the pituitary gland

Description

This patient has pituitary apoplexy. It is a sudden enlargement of pituitary tumor secondary to hemorrhage or infarction. It is manifested by sudden onset headache, vomiting and neck stiffness with signs of pituitary compression causing visual field defects (optic chiasm compression) or cavernous sinus compression and extraocular nerve palsies.

Fluids resuscitation and correction of metabolic and hormonal disturbance is the management of choice in mild cases. Surgical decompression of the pituitary gland is indicated if sudden visual loss and severe visual field defects occurs.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 150

Correct 32

Incorrect 118

Average Score 21.33 %

Question Difficulty:

Hard

16 years old girl was referred due to weight gain. Her mother reports that over the last two months she has become increasingly agitated with poor sleep.

Examinations reveal warm, moist, smooth skin and hand tremor. Investigations show:

TSH	2 U/I	(0.5-4.5 U/I)
Free T4	12 pmol/L	10 - 23 pmol/L
Free T3	4 pmol/L	3.5 - 6.5 pmol/L
Total T4	180 nmol/L	58 - 161 nmol/L
Total T3	3.6 nmol/L	0.9-2.8 nmol/L

What investigation to be requested?

- ☐ Neck ultrasound
- ☐ Brain MRI
- ☒ Thyroid gland biopsy
- ☐ Repeat pregnancy test
- ☐ Insulin stress test

Description

Pregnancy is associated with increased thyrotropin binding protein causing normal TSH, T4 and T3 with elevated total T4 and T3. Pregnancy test should be requested.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 151

✓ Correct 32

✗ Incorrect 119

Average Score: 21.19 %

Mr. X is complaining of epigastric pain and diarrhea. His GP initially prescribed lansoprazole but this did not alleviate his symptoms. He has a past medical history of bone pain.

Examination reveals multiple cutaneous lipomas. Endoscopy revealed multiple duodenal ulcerations. Serial investigations show:

Serum creatinine	88 mmol/L	(53-106 mmol/L)
Hemoglobin	15 g/dL	13.5-17.5 g/dL
Leukocyte count	8.2 X10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.8 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	0.6 mmol/L	(0.81 - 1.45 mmol/L)

What is the most likely diagnosis?

☐ Crohn disease

☒ Multiple endocrine neoplasia type I

☐ Addison disease

☐ Multiple endocrine neoplasia type II a

☐ Celiac disease

Description

This patient has Zollinger-Ellison syndrome and the investigations show hyperparathyroidism. All are manifestations of MEN type 1. It is manifested by:

- Parathyroid tumors that cause hyperparathyroidism and hypercalcemia
- Pituitary tumors as prolactinoma
- Pancreatic tumors as gastrinoma (Zollinger-Ellison syndrome), insulinoma and carcinoid tumors
- Cutaneous tumors as angiolipoma and lipoma

CHECK ANSWER

END SESSION

NEXT

Session Statistics

👤 Answered 152

✓ Correct 32

✗ Incorrect 120

📊 Average Score: 21.05 %

Question 154 of 191

Question Difficulty:

Hard

Mr. X with a recent history of diagnosis of polycystic ovarian syndrome is complaining of hirsutism which is still trouble some even with topical hair-removal agents.

What is the management of choice if she is concerned about conceiving?

- ☒ Dianette
- ☐ Metformin
- ☐ Combined oral contraceptive pills
- ☐ Clomiphene
- ☐ Bromocriptine

Description

Hirsutism is managed by topical hair-removal agents, if it fails combined oral contraceptive pills or a combination of cyproterone acetate and ethinyloestradiol (Dianette).

Dianette may provide contraception for women taking it for acne or hirsutism, but it should not be used solely as a contraceptive.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 153

✓ Correct 33

✗ Incorrect 120

Average Score: 21.57 %

Question 154 of 191

Question Difficulty:

Hard

Mr. X with a recent history of diagnosis of polycystic ovarian syndrome is complaining of hirsutism which is still trouble some even with topical hair-removal agents.

What is the management of choice if she is concerned about conceiving?

- ☒ Dianette
- ☐ Metformin
- ☐ Combined oral contraceptive pills
- ☒ Clomiphene
- ☐ Bromocriptine

Description

Hirsutism is managed by topical hair-removal agents, if it fails combined oral contraceptive pills or a combination of cyproterone acetate and ethinyloestradiol (Dianette).

Dianette may provide contraception for women taking it for acne or hirsutism, but it should not be used solely as a contraceptive.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered: 153

✓ Correct: 33

✗ Incorrect: 120

📊 Average Score: 21.57 %

Question 154 of 191

Question Difficulty:

Hard

Mr. X with a recent history of diagnosis of polycystic ovarian syndrome is complaining of hirsutism which is still trouble some even with topical hair-removal agents.

What is the management of choice if she is concerned about conceiving?

- ☒ Dianette
- ☐ Metformin
- ☐ Combined oral contraceptive pills
- ☒ Clomiphene
- ☐ Bromocriptine

Description

Hirsutism is managed by topical hair-removal agents, if it fails combined oral contraceptive pills or a combination of cyproterone acetate and ethinylestradiol (Dianette).

Dianette may provide contraception for women taking it for acne or hirsutism, but it should not be used solely as a contraceptive.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered 153

✓ Correct 33

✗ Incorrect 120

📊 Average Score: 21.57 %

Question 155 of 191

Question Difficulty:

Hard

Mrs. X is complaining of amenorrhoea, palpitations, and weight loss for 2 months. She also noticed 'fullness' of her neck and puffiness of her eyes. Investigations show:

TSH	0.05U/l	(0.5-4.5 U/l)
Free T4	36 pmol/L	10 - 23 pmol/L
Free T3	12.6 pmol/L	3.5 - 6.5 pmol/L
Anti-TPO	positive	
Pregnancy test	positive	

What is the management of choice?

- ☐ Radioactive iodine
- ☒ Propylthiouracil
- ☐ Block-and-replace regimen
- ☒ Carbimazole
- ☐ Thyroid hormone replacement

Description

This lady has hyperthyroidism with exophthalmos which is specific for diagnosis of Graves' disease. During pregnancy propylthiouracil is the management of choice. Carbimazole causes aplasia cutis and block-and-replace regime results in fetal hypothyroidism. Radioactive iodine causes teratogenic effects.

CHECK ANSWER

END SESSION

NEXT

Question 156 of 191

Question Difficulty:

Average

Mr. X was attending to renal clinic for review of his stable stage 4 chronic kidney disease complaining of bone pain. Serial investigations show:

Serum calcium	1.9 mmol/L	(2.1-2.6 mmol/L)
Serum phosphate	1.6 mmol/L	(0.81 - 1.45 mmol/L)
PTH	35.5 pmol/l	0.9-5.4 pmol/l

Bone densitometry shows increased bone resorption.

What is the management of choice?

- ☐ Calcium acetate
- ☐ Alfacalcidol
- ☐ Calcium carbonate
- ☒ Cinacalcet
- ☒ Sevelamer

- ☐ Calcium acetate
- ☐ Alfacalcidol
- ☐ Calcium carbonate
- ☒ Cinacalcet
- ☒ Sevelamer

Description

Cinacalcet is indicated to decrease parathyroid hormone (PTH) production as hyperparathyroidism affects bone density.

CHECK ANSWER

END SESSION

NEXT

Question 157 of 191

Question Difficulty:

Hard

Mr. X is complaining of bone and joint pain and pseudogout for 6 months. Serial investigations show:

Serum calcium	3.1 mmol/L	(2.1-2.8 mmol/L)
PTH	5.7 pmol/l	0.9-5.4 pmol/l
Urinary calcium	360 mg/24h	25-300 mg/24h

What is the most likely cause of his symptoms?

- ☐ Parathyroid carcinoma
- ☒ MEN 2a
- ☐ MEN 1
- ☒ Single adenoma
- ☐ Idiopathic

Description

This patient has primary hyperparathyroidism is manifested by hypercalcaemia, hypercalciuria, hypophosphatemia and elevated parathyroid hormone level (at the high end of the reference range).

Single adenoma causes 85% of cases of primary hyperparathyroidism.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 156

✓ Correct 33

✗ Incorrect 123

Average Score: 21.15 %

Question 158 of 191

Question Difficulty:

Easy

Mr. X with long history of hypertension is complaining of 3-month-history of episodes of headaches and dizziness.

Examination shows a standing BP of 152/90 mmHg. There is a thyroid swelling which has not previously been noted. All other examinations are normal. Investigations show:

Hemoglobin	13 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	6.2 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	139 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)

Which of the following tests is diagnostic?

- ☐ MRI brain
- ☐ 24hr urinary 5-HIAA
- ☒ 24hr urinary catecholamines
- ☒ Adrenal biopsy
- ☐ Cystoscopy

Description

This patient has pheochromocytoma. It is a rare, catecholamine-secreting tumor. It is bilateral in 10% of cases and malignant in 10% of cases. It is manifested by headaches, pallor, palpitations, diaphoresis, tremor and constipation.

The thyroid swelling points to medullary thyroid cancer which is a feature as pheochromocytoma of multiple endocrine neoplasia type 2 (MEN 2).

24-hour urinary collection for catecholamines is diagnostic with specificity of 99%.

CHECK ANSWER

END SESSION

NEXT

Question 159 of 191

Question Difficulty:

Easy

Mr. X was found complaining of hypertension and palpitations. He has a history of subtotal thyroidectomy due to medullary thyroid cancer. Examination reveals BP of 160/110 mmHg with heart rate of 112 per minute. Chest, abdominal and neurological examinations are normal except pansystolic murmur loudest at the apex. ECG shows sinus rhythm. Investigations show:

Hemoglobin	13 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	6.2 X10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	139 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
pH	7.4	(7.35-7.45)

What is the most likely diagnosis?

- ☐ Abuse of growth hormone
- ☐ Graves' disease
- ☒ Cushing syndrome
- ☐ Addison disease
- ☐ Pheochromocytoma

Description

Pheochromocytoma is a rare, catecholamine-secreting tumor. It is bilateral in 10% of cases and malignant in 10% of cases. It is manifested by headaches, pallor, palpitations, diaphoresis, tremor and constipation.

The history medullary thyroid cancer points to multiple endocrine neoplasia type 2 (MEN 2) as an association.

CHECK ANSWER

END SESSION

NEXT

Question 160 of 191

Question Difficulty:

Easy

Mr. X was admitted to the ED due to hypertension that is difficult to control. He is now taking ramipril, amlodipine and atenolol all on maximum dose. Investigations show:

Serum creatinine	99 mmol/L	(53-106 mmol/L)
Serum sodium	151 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	30 mmol/L	(22-28 mmol/L)
pH	7.56	(7.35-7.45)
Fasting glucose	4.8 mmol/l	4 - 5.5 mmol/l

Which of the following tests should be requested?

- ☐ Renal angiogram
- ☒ Plasma renin, aldosterone and cortisol level after washout of antihypertensives
- ☐ Echocardiogram
- ☒ Plasma renin, aldosterone and cortisol level
- ☐ Oral salt loading

Description

This patient is likely to have primary aldosteronism. It is considered one of the most common causes of secondary hypertension. It is manifested by hypertension that is severe and drug-resistant with hyponatremia, hypokalemia and metabolic alkalosis.

There is high serum aldosterone and low serum renin. Measuring both is essential to confirm diagnosis and to exclude renal artery stenosis (high both serum aldosterone and serum renin). Antihypertensive drugs that can affect the renin-angiotensin system, so they should be withheld 6 weeks prior to measuring.

CHECK ANSWER

END SESSION

NEXT

Question 161 of 191

Question Difficulty:

Hard

Mr. X is complaining of episodes of tremor, sweating and incoordination particularly when he first wakes in the morning. He checked his serum glucose during an episode which was record as being 1.4 mmol/L.

Prolonged fasting showed serum insulin levels of 12 μ U/mL ($< 6 \mu$ U/mL). He was checked for his C-peptide level which was 4.5 ng/mL (> 2.5 ng/mL).

Which of the following action should be taken?

- ☐ Abdominal CT
- ☐ Start octreotide
- ☒ Regular glucose infusion
- ☐ Screening for sulfonylurea
- ☐ Start diazoxide

Description

This patient has insulinoma. It is characterized clinically by the Whipple triad:

- Presence of symptoms of hypoglycemia (about 85% of patients)
- Documented low blood glucose at the time symptoms
- Reversal of symptoms by glucose administration

As C-peptide was elevated, factitious hypoglycemia induced by sulfonylurea should be excluded.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 160

✓ Correct 33

✗ Incorrect 127

Average Score: 20.63 %



Question 162 of 191

Question Difficulty:

Average

Mr. X is complaining of pain in his calves while walking his dog after only quite modest exercise. There is a history of smoking 40 cigarettes per day and early cardiovascular disease in the family.

Examination shows he has tendon xanthomas affecting the extensor tendons of his fingers and at the elbows. His lipid profile shows:

Total cholesterol	11 mmol/L	< 5.2 mmol/L
Triglyceride	1.6 mmol/L	≤ 1.70 mmol/L
High-density lipoprotein (HDL)	0.8 mmol/L	< 1.03 mmol/L
Low-density lipoprotein (LDL)	2.4 mmol/L	< 1.3 mmol/L

What is the management of choice for his lipid profile error?

- ☐ Pravastatin 40 mg
- ☐ Atorvastatin 10 mg
- ☐ Bezafibrate 200mg
- ☒ Atorvastatin 80 mg
- ☐ Nicotinic acid 1.5g

Description

This patient is complaining of heterozygous familial hypercholesterolemia. Familial hypercholesterolemia is manifested by severely elevated cholesterol levels (total cholesterol plus LDLc levels >33 mmol/L in homozygous FH and >14 mmol/L in heterozygous FH as in this case).

High statin dose with or without bile acid sequestrants is the management of choice; Ezetimibe and niacin are alternatives.

CHECK ANSWER

END SESSION

NEXT

Question 163 of 191

Question Difficulty:

Easy

Mrs. X was seeking an advice failed losing weight trials. She had lifestyle interventions and trials of orlistat and sibutramine she has failed to lose a significant amount of weight. She is currently taking ramipril for hypertension.

What is the cut-off BMI that would trigger a referral for consideration of bariatric surgery?

- ☐ BMI > 40 kg/m²
- ☐ BMI > 35 kg/m²
- ☒ BMI > 38 kg/m²
- ☐ BMI > 30 kg/m²
- ☐ BMI > 45 kg/m²

Description

Bariatric surgery is indicated for people have a BMI > 40 kg/m² or people have a BMI between 35 kg/m² and 40 kg/m² with comorbidities (hypertension as in this case).

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered 162

✓ Correct 34

✗ Incorrect 128

📊 Average Score: 20.99 %

Question 164 of 191

Question Difficulty:

Hard

Mrs. X is suffering from vaginal dryness and absence of periods for the past 4 months. She also noticed milk leakage from her breasts. Neurological examination was free. Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Hemoglobin	12 g/dL	(Female: 12.0-16.0 g/dL)
MCV	94 fl	80-100 fl
Leukocyte count	7 X10 ⁹ /L	(4.0-11.0 x 10 ⁹ /L)
Serum growth hormone	9.5 ng/mL	Women < 10 ng/mL
Serum prolactin	270 ng/L	2-19 ng/mL

What is the most likely diagnosis?

- ☐ Macroprolactinoma
- ☐ Microprolactinoma
- ☐ Craniopharynglioma
- ☐ Acromegaly
- ☒ Pregnancy

Description

Pregnancy is the commonest cause of amenorrhea and galactorrhea and should be excluded first before any other investigation. Pregnancy prolactin increased up to 10 folds of normal level. Growth hormone may be mildly elevated during pregnancy.

Serum prolactin ranges from 1500 mU/L to 3000 mU/L in patients with microprolactinoma and levels exceeds 3000 mU/L in those with macroprolactinoma.

CHECK ANSWER

END SESSION

NEXT

Question 165 of 191

Question Difficulty:

Hard

Mrs. X is complaining of tiredness, lethargy and an increasingly hoarse voice for 3 months. She also reported a progressive dysphagia to solids for 1 month. Examination reveals a large uniform non-tender goiter. Thyroid function testing was ordered and showed:

TSH	12.3 U/I	(0.5-4.5 U/I)
Free T4	2 pmol/L	10 - 23 pmol/L
Free T3	1.5 pmol/L	3.5 - 6.5 pmol/L
Anti-TPO	Positive	

Thyroid biopsy was ordered and showed diffuse lymphocytic cell infiltration.

What is the management of choice?

- ☒ Total thyroidectomy
- ☐ Radioactive iodine
- ☐ Subtotal thyroidectomy
- ☒ Thyroid hormone replacement
- ☐ Thyroid irradiation

Description

This patient has Hashimoto thyroiditis. It is autoimmune thyroid disease characterized by the destruction of thyroid cells. It is manifested by hypothyroidism with an insidious onset or subclinical hypothyroidism with painless goiter.

Total thyroidectomy is indicated in:

- Large goiter with obstructive symptoms (as this case)
- Malignant nodule
- Thyroid lymphoma

CHECK ANSWER

END SESSION

NEXT

Question 166 of 191

Question Difficulty:

Easy

Mr. X is suffering from anxiety, weight loss and palpitations over the past few months. His thyroid function tests show:

TSH	0.2 U/l	(0.5-4.5 U/l)
Free T4	30 pmol/L	10 - 23 pmol/L
Free T3	12 pmol/L	3.5 - 6.5 pmol/L

What is the management of choice?

- ☐ Propranolol
- ☐ Thyroxin
- ☒ Carbimazole
- ☐ Paroxetine
- ☐ Follow up

Description

Carbimazole is the mainstay of initial management of thyrotoxicosis. propylthiouracil is an alternative. Propranolol is symptomatic for anxiety and palpitations.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered: 165

✓ Correct: 35

✗ Incorrect: 130

📊 Average Score: 21.21 %

Question 167 of 191

Question Difficulty:

Easy

Mr. X is complaining of recurrent renal stones and poly urea for 6 months. He noticed that his symptoms started 1 month after he was stated treatment of diagnosed GERD. His investigations show:

Serum calcium	3.4 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	1.4 mmol/L	(0.81 - 1.45 mmol/L)
PTH	0.7 pmol/l	0.9-5.4 pmol/l

What is the most likely diagnosis?

- ☐ Idiopathic hypercalciuria
- ☐ Tertiary hyperparathyroidism
- ☒ Milk-alkali Syndrome
- ☐ Primary hyperparathyroidism
- ☒ Secondary hyperparathyroidism

Description

- ☐ Idiopathic hypercalciuria
- ☐ Tertiary hyperparathyroidism
- ☒ Milk-alkali Syndrome
- ☐ Primary hyperparathyroidism
- ☒ Secondary hyperparathyroidism

Description

Milk-alkali syndrome is caused by the ingestion of large amounts of calcium and absorbable alkali (due to chronic indigestion), with resulting hypercalcaemia.

It is manifested by hypercalcaemia, tissue calcification and renal failure.

CHECK ANSWER

END SESSION

NEXT

Question 168 of 191

Question Difficulty:

Average

Mr. X is complaining of frontal headaches, excessive sweating, galactorrhea, polyuria and polydipsia. Examination reveals blood pressure of 160/110 mmHg. He has moderate obesity, macrocephaly and exaggerated growth of the hands and feet, with thick fingers and toes.

Visual field examination reveals bitemporal hemianopia. Investigations show:

Serum prolactin	120 ng/L	Men 2-18 ng/mL
Serum growth hormone	4 ng/mL	Men: < 5 ng/mL
Fasting glucose	9 mmol/l	(3-6 mmol/l)

What is the most likely diagnosis?

- ☐ Diabetes mellitus
- ☐ Pituitary macroadenoma
- ☒ Acromegaly
- ☒ Craniopharyngioma
- ☐ Pituitary microadenoma

What is the most likely diagnosis?

- ☐ Diabetes mellitus
- ☐ Pituitary macroadenoma
- ☒ Acromegaly
- ☒ Craniopharyngioma
- ☐ Pituitary microadenoma

Description

This patient has feature of acromegaly as soft tissue hypertrophy and exaggerated growth of the hands and feet, with thick fingers and toes with features of pituitary adenoma as a cause.

Raised prolactin occurs in 30% of cases. Growth hormone (GH) is not diagnostic as its levels vary during the day.

CHECK ANSWER

END SESSION

NEXT

Question 169 of 191

Question Difficulty:

Average

Mr. X was referred to the clinic with very difficult to manage hypertension. He is currently taking indapamide, ramipril, amlodipine and doxazosin.

Investigations reveal sodium 142 mmol/l, potassium 2.6 mmol/l, chloride 101 mmol/l and normal urea and creatinine levels. Plasma renin is undetectable and aldosterone levels are raised.

Which of the following investigations to be requested?

- ☐ Dexamethasone suppression test
- ☒ Renal artery angiography
- ☐ Abdominal CT
- ☐ Abdominal MRI
- ☐ Brain MRI

Description

This patient is likely to have primary aldosteronism. It is considered one of the most common causes of secondary hypertension. It is manifested by hypertension that is severe and drug-resistant with hyponatremia, hypokalemia and metabolic alkalosis. There is high serum aldosterone and low serum renin.

Abdominal CT with contrast is indicated to localize the cause whether it is bilateral idiopathic adrenal hyperplasia, Conn syndrome or adrenal carcinoma.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

■ Answered 168

✓ Correct 36

✗ Incorrect 132

📊 Average Score: 21.43 %

Question 170 of 191

Question Difficulty:

Hard

30 years Mrs. X is complaining of amenorrhoea. For the past few months she has been experiencing hot flushes, night sweats, mood changes and pain on intercourse. Investigations reveal:

Serum prolactin	8 ng/L	Non-gravid/non-lactating: 2-29 ng/mL
LH	8 IU/L	1-20 IU/L
FSH	30 IU/L	1-20 IU/L
TSH	1.6 U/I	(0.5-4.5 U/I)
Testosterone	2.4 nmol/l	< 2.5 nmol/l

What is the most likely diagnosis?

- ☒ Pituitary failure
- ☐ Thyrotoxicosis
- ☐ Polycystic ovarian syndrome
- ☐ Androgen-secreting adrenal tumor
- ☐ Premature ovarian failure

Description

Premature ovarian failure is the loss of function of the ovaries before age 40. POF signs and symptoms are the same as menopause (hot flushes and vaginal dryness). It is associated with increased risk of heart disease, Hashimoto thyroiditis, Addison disease, and other autoimmune disorders.

Lab findings are the same as menopause (low levels of estrogen and estradiol and high levels of FSH)

CHECK ANSWER

END SESSION

NEXT

Question 171 of 191

Question Difficulty:

Easy

Mrs. X is complaining of neck swelling that progressed slowly over the past 6 months. She also reported weight gain, cold intolerance for 3 months. Examinations reveal dry skin, loss of body hair and lower limb edema.

Investigations are normal except elevated serum cholesterol. Thyroid function testing was ordered and showed:

TSH	12.3 U/I	(0.5-4.5 U/I)
Free T4	2 pmol/L	10 - 23 pmol/L
Free T3	1.5 pmol/L	3.5 - 6.5 pmol/L
Total T4	40 nmol/L	58 - 161 nmol/L
Total T3	0.6 nmol/L	0.9-2.8 nmol/L
Anti-Tg	Positive	

What is the most likely diagnosis?

- ☐ Graves' disease
- ☐ Multi-nodular goiter
- ☐ Anaplastic thyroid carcinoma
- ☒ Hashimoto thyroiditis
- ☐ Subacute thyroiditis

Description

Hashimoto thyroiditis is autoimmune thyroid disease characterized by the destruction of thyroid cells. It is manifested by hypothyroidism with an insidious onset or subclinical hypothyroidism with painless goiter.

Thyroid autoantibodies (anti-TPO (anti-thyroid peroxidase) and anti-Tg (anti-thyroglobulin)) are diagnostic in 90% of cases.

CHECK ANSWER

END SESSION

NEXT

Question 172 of 191

Question Difficulty:

Easy

14 years Miss X is investigated for primary amenorrhoea, despite having developed secondary sexual characteristics at 11 years of age.

Examination reveals she has well developed breasts with scanty pubic hair and small bilateral groin masses. Investigations show:

LH	22 IU/L	1-20 IU/L
FSH	9 IU/L	1-20 IU/L
Serum prolactin	20 ng/L	2-29 ng/mL
Testosterone	14 nmol/l	< 2.5 nmol/l

What is the most likely diagnosis?

- ☒ Androgen insensitivity syndrome
- ☐ Noonan syndrome
- ☒ Congenital adrenal hyperplasia
- ☐ Turner syndrome
- ☐ Mullerian duct agenesis

What is the most likely diagnosis?

- ☒ Androgen insensitivity syndrome
- ☐ Noonan syndrome
- ☒ Congenital adrenal hyperplasia
- ☐ Turner syndrome
- ☐ Mullerian duct agenesis

Description

Androgen insensitivity syndrome (testicular feminization) is an X-linked recessive condition resulting in genotypically male children to have a female phenotype.

It is manifested by primary amenorrhoea, undescended testes causing inguinal mass and gynecomastia and impaired phallic growth.

LAB findings show elevated serum testosterone, estradiol and LH.

Question 173 of 191

Question Difficulty:

Easy

32 Mr. X is complaining of failing to conceive after 6 years of marriage. Examination shows he has sparse body hair in the axilla and pubic regions. Two testicles are identified, both of small volume. Investigations show:

Serum prolactin	15 ng/L	Men 2-18 ng/mL
Serum growth hormone	2 ng/mL	Men: < 5 ng/mL
TSH	2 U/I	(0.5-4.5 U/I)
LH	20.6 IU/L	Males 1-10 IU/L
FSH	16.4 IU/L	Males 1-7 IU/L
Testosterone	60 ng/dL	240-950 ng/dL

What is the procedure of choice for diagnosis?

- ☐ Testicular biopsy
- ☐ Adrenal gland biopsy
- ☒ Chromosomal analysis
- ☒ Brain CT
- ☐ Brain MRI

Description

This man has Klinefelter syndrome. It is XXY syndrome occurs as the result of chromosomal non-disjunction causing male hypogonadism and infertility. It is manifested by infertility, gynecomastia, lack of secondary sexual characteristics and small firm testes.

Klinefelter syndrome is associated with elevated gonadotropin levels FSH, LH with decreased testosterone levels (hypergonadotrophic hypogonadism) unlike Kallmann syndrome (hypogonadotrophic hypogonadism).

Chromosomal analysis is of choice for diagnosis.

CHECK ANSWER

END SESSION

NEXT

Question 174 of 191

Question Difficulty:

Easy

Mr. X with a history of type-1 diabetes mellitus presents in the A&E with fever, cough, vomiting and abdominal pain. Investigations show a blood glucose concentration of 30 mmol/l, Na⁺ 130 mmol/l, K⁺ 5.7 mmol/l, creatinine 120 µmol/l, pH 7.15, HCO₃ 12 mmol/l and urinary ketones are positive (+++).

He was started IV fluids, insulin and IV potassium.

Which of the following prophylactic treatment should be started?

- ☐ IV antibiotics
- ☒ IV heparin
- ☐ IV calcium
- ☐ IV bicarbonate
- ☐ Hemodialysis

Description

This patient has Diabetic ketoacidosis (DKA). Prophylaxis against deep vein thrombosis should be started. Intravenous bicarbonate is used only if serum bicarbonate is <7 mmol/l (life threatening acidemia).

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 173

✓ Correct 37

✗ Incorrect 136

✓ Average Score: 21.39 %

Question 175 of 191

Question Difficulty:

Hard

Mrs. X is a pharmacist was complaining of progressive weight gain and light headedness for 6 months. She reported she has gained 10 kg in weight in the past 3 months. Her light headedness tends to be worse in the morning and with exercise and usually associated by sweating and double vision.

She reported he checked his serum glucose during an episode which was 1.5 mmol/l. She was referred for prolonged fasting which showed serum insulin levels of 4.5 μ U/mL ($< 6 \mu$ U/mL).

What is the most likely diagnosis?

- ☐ Cushing syndrome
- ☐ Glucagonoma
- ☒ Ectopic administration of insulin
- ☐ Insulinoma
- ☐ Sulfonylurea misuse

Description

Ectopic administration of insulin, sulfonylurea misuse and insulinoma cause hypoglycemia. Sulfonylurea misuse is the only causes that is not associated with Hyperinsulinemia.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered 174

✓ Correct 38

✗ Incorrect 136

📈 Average Score: 21.84 %

Question 176 of 191

Question Difficulty:

Easy

Mr. X is suffering from hypertension that is resistant to treatment associated with muscle weakness, and palpitations. He is currently taking atenolol, bendrofluzide and ramipril and his blood pressure is currently 180/115 mmHg. Investigations show:

Serum creatinine	99 mmol/L	(53-106 mmol/L)
Serum sodium	151 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	30 mmol/L	(22-28 mmol/L)
pH	7.56	(7.35-7.45)
Fasting glucose	4.8 mmol/l	4 - 5.5 mmol/l
Plasma renin activity	0.03 ng/(mL x hour)	0.29 - 1.9 ng/(mL x hour)
Serum aldosterone	23 ng/dl	2 - 9 ng/dl

What is the most likely diagnosis?

- ☐ Renal artery stenosis
- ☐ Cushing disease
- ☒ Conn syndrome
- ☒ Essential hypertension
- ☐ Pheochromocytoma

Description

Primary aldosteronism is considered one of the most common causes of secondary hypertension. It is manifested by hypertension that is severe and drug-resistant with hypernatremia, hypokalemia and metabolic alkalosis. There is high serum aldosterone and low serum renin.

Cushing disease is excluded as there is effect on fasting glucose, no metabolic symptoms and associated hypernatremia.

Renal artery stenosis is associated with elevated serum renin and aldosterone with hypokalemia.

CHECK ANSWER

END SESSION

NEXT

Question 177 of 191

Question Difficulty:

Average

Mr. X is seeking medical advice about repeated fits after an operated surgery for a bronchogenic carcinoma. Neurological examination reveals generalized weakness and hyperreflexia with no focal signs.

Investigations show:

Serum creatinine	80 mmol/L	(53-106 mmol/L)
Serum sodium	125 mmol/L	(136-145 mmol/L)
Serum potassium	3.6 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)
Plasma osmolality	270 mmol/kg	(275-295 mmol/kg)
Urine osmolality	720 mmol/kg	(500-800 mmol/kg)

What is management of choice?

- ☐ Glucocorticoids
- ☐ Saline infusion
- ☒ Demeclocycline
- ☒ Desmopressin
- ☐ Fluid deprivation test

Description

This patient has syndrome of inappropriate antidiuretic hormone. It is manifested by generalized muscle weakness, myoclonus, hyporeflexia, confusion, delirium and seizures. Investigations show hyponatremia with low plasma osmolality, high urine osmolality.

Fluid restriction is the management of choice. Demeclocycline can be useful if fluid restriction fails.

Question 178 of 191

Question Difficulty:

Easy

Mrs. X is seeking medical advice about tiredness lack of milk production 2 weeks after she gave a birth of her 2nd child. Her pregnancy and delivery were uneventful except she was given blood transfusion after delivery for postpartum hemorrhage.

Examination shows she is slim and pale, with small breasts and thin or largely absent pubic and axillary hair. Investigations show:

Serum creatinine	90 mmol/L	(53-106 mmol/L)
Serum sodium	128 mmol/L	(136-145 mmol/L)
Serum potassium	35.8 mmol/L	(3.5-5.0 mmol/L)
Hemoglobin	12 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	9 X10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
Serum prolactin	950 ng/L	Men 2-18 ng/mL
TSH	0.02 U/I	(0.5-4.5 U/I)

What is the most likely diagnosis?

- ☐ Primary adrenal failure
- ☒ Sheehan syndrome
- ☐ Pituitary apoplexy
- ☐ Dehydration
- ☒ Microprolactinoma

Description

Sheehan syndrome is necrosis of the pituitary gland. It is a rare complication of postpartum hemorrhage. Sheehan syndrome may appear acutely after delivery by hyponatremia due to SIADH.

The initial symptom is agalactorrhea (absence of lactation), amenorrhea or oligomenorrhea and late features of hypopituitarism (secondary hypothyroidism, secondary adrenal insufficiency).

CHECK ANSWER

END SESSION

NEXT

Question 179 of 191

Question Difficulty:

Average

Mr. X was found complaining of hypertension, tremors and palpitations. He has a history of total thyroidectomy due to medullary thyroid cancer. Examination reveals BP of 160/110 mmHg with heart rate of 112 per minute.

LAB examinations were free. Abdominal CT scanning shows left adrenal mass. 24-hour urinary collection shows elevated catecholamines. Surgical resection was planned.

What is the management of choice for hypertension?

- ☒ Phenoxybenzamine
- ☐ Bisoprolol
- ☐ Hydrochlorothiazide
- ☒ Atenolol
- ☐ Indapamide

Description

This patient has pheochromocytoma. It is a rare, catecholamine-secreting tumor. It is bilateral in 10% of cases and malignant in 10% of cases. It is manifested by headaches, pallor, palpitations, diaphoresis, tremor and constipation.

The history medullary thyroid cancer points to multiple endocrine neoplasia type 2 (MEN 2) as an association.

24-hour urinary collection for catecholamines is diagnostic with specificity of 99%.

Surgical resection of the tumor is the treatment of choice. Medical therapy is indicated as preoperative stabilizer, it includes initiation with Alpha blocker to control blood pressure and followed Beta blockers for preventing tachycardia that occurs after alpha blockers.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered 178

Correct 39

Incorrect 139

Average Score: 21.91

Question 180 of 191

Question Difficulty: **Hard**

Mr. X is referred for follow-up for his type 2 diabetes mellitus. Currently he takes gliclazide and simvastatin. His BMI is 35 kg/m². His investigations show:

Serum creatinine	89 mmol/L	(53-106 mmol/L)
Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	3.8 mmol/L	(3.5-5.0 mmol/L)
HbA1c	61 mmol/mol (7.8%)	

A recent trial of metformin was unsuccessful due to gastrointestinal side-effects

What is the most appropriate next step in management?

- ☐ Add acarbose
- ☐ Add repaglinide
- ☐ Keep current management
- ☐ Add pioglitazone
- ☒ Add canagliflozin

Description

NICE suggests if HbA1c levels are not adequately controlled by a single drug and rise to 58 mmol/mol (7.5%) or higher: intensify drug treatment (First intensification with dual non-insulin drugs and Second intensification with triple non-insulin drugs or any treatment combination containing insulin).

Sodium-glucose transport (SGLT-2) inhibitors (canagliflozin, dapagliflozin or empagliflozin) are not licensed by NICE to be used as monotherapy but they can be used in combinations. Pioglitazone is a possible option but may contribute to his obesity.

Question 181 of 191

Question Difficulty:

Easy

15 years old teen is suffering from with recurrent episodes of penile thrush. His fasting glucose was 8.2 mmol/l. He has a strong family history of type 2 diabetes.

Investigations show fasting glucose of 9.2 mmol/l and hemoglobin A1C was 9% (75 mmol/mol).

What is the most likely diagnosis?

- ☐ -
- ☐ Incidental hyperglycemia
- ☐ Insulin dependent type-2 diabetes mellitus
- ☒ Type-1 diabetes mellitus
- ☐ Maturity-onset diabetes of the young (MODY)

Description

This patient has maturity onset diabetes of the young (MODY). It refers to several hereditary forms of diabetes caused by mutations in an autosomal dominant gene disrupting insulin production.

It is manifested by early-onset, non-insulin dependent type 2-diabetes.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered 180

✓ Correct 40

✗ Incorrect 140

📈 Average Score: 22.22 %

Question 182 of 191

Question Difficulty:

Average

Mr. X was admitted for management of meningococcal septicemia and was treated with high-dose ceftriaxime. 2 days of admission he complained of flank pain and is now becoming drowsy and lethargic.

His blood pressure is 90/45 mmHg. Investigations show:

Hemoglobin	13 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	3.2 X 10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
Serum creatinine	105 mmol/L	(53-106 mmol/L)
Serum sodium	132 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	18 mmol/L	(22-28 mmol/L)
Fasting glucose	3 mmol /L	3.5-5.5 mmol /L

What is the likely cause of his deterioration?

- ☐ Septic shock
- ☒ Adrenal insufficiency
- ☐ Acute tubular necrosis
- ☐ SIADH
- ☒ Acute interstitial nephritis secondary to ceftriaxime

Description

Adrenal insufficiency is manifested by hyponatremia, hyperkalemia and metabolic acidosis associated with hypoglycemia and hypotension.

CHECK ANSWER

END SESSION

NEXT

Question 183 of 191

Question Difficulty:

Easy

Mr. X with a long history of depression was complaining of renal stones. His investigations show:

Serum calcium	2.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	0.6 mmol/L	(0.81 - 1.45 mmol/L)

What is the most likely cause of his symptoms?

- ☐ Multiple myeloma
- ☐ Occult carcinoma
- ☒ Paget disease
- ☐ Hyperparathyroidism
- ☐ Hypoparathyroidism

Description

Primary hyperparathyroidism is manifested by hypercalcaemia, hypercalcaemia, hypophosphatemia and elevated parathyroid hormone level (at the high end of the reference range).

Other causes of hypercalcaemia would suppress the parathyroid hormone causing hyperphosphatemia.

CHECK ANSWER

END SESSION

NEXT

Session Statistics

Answered: 182

✓ Correct: 40

✗ Incorrect: 142

Average Score: 21.98 %

Question 184 of 191

Question Difficulty:

Hard

Mr. X with a recent history of myocardial infarction was sent for review due to abnormal lipid profile. He is a non-smoker with no past history of note and is not diabetic. His father died of a myocardial infarction at the age of 43.

Examination revealed planar xanthoma and white, grey opaque ring in the corneal margin. His lipid profile shows:

Total cholesterol	29 mmol/L	< 5.2 mmol/L
Triglyceride	1.6 mmol/L	< 1.70 mmol/L
High-density lipoprotein (HDL)	0.8 mmol/L	< 1.03 mmol/L
Low-density lipoprotein (LDL)	4.4 mmol/L	< 1.3 mmol/L

What is the most likely diagnosis?

- ☐ Abetalipoproteinemia
- ☐ Heterozygous familial hypercholesterolemia
- ☐ Familial hypertriglyceridemia
- ☒ Homozygous familial hypercholesterolemia
- ☐ Mixed hyperlipidemia

Description

Homozygous familial hypercholesterolemia has severe disease and survival rate beyond age 30 years is rare than heterozygous FH.

Familial hypercholesterolemia is manifested by severely elevated cholesterol levels (total cholesterol plus LDLc levels >33 mmol/L in homozygous FH as in this case and >14 mmol/L in heterozygous FH).

CHECK ANSWER

END SESSION

NEXT

Question 185 of 191

Question Difficulty:

Hard

Mr. X is complaining of a felt mass in his neck. Examination reveals a non-tender goiter. She has no signs of thyroid hormone disturbances.

Investigations show:

TSH	5.3 U/l	(0.5-4.5 U/l)
Free T4	18 pmol/L	10 - 23 pmol/L
Free T3	4.5 pmol/L	3.5 - 6.5 pmol/L
Anti-TPO	Positive	

What is the most likely diagnosis?

- ☐ Thyroid hormone replacement
- ☐ Total thyroidectomy
- ☒ Thyroid irradiation
- ☐ Radioactive iodine
- ☐ Follow up

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Description

This patient has Hashimoto thyroiditis. It is autoimmune thyroid disease characterized by the destruction of thyroid cells. It is manifested by hypothyroidism with an insidious onset or subclinical hypothyroidism with painless goiter.

Thyroid hormone replacement is of choice for hypothyroidism. This patient has subclinical hypothyroidism so thyroid hormone replacement is not indicated. Total thyroidectomy is indicated in:

- Large goiter with obstructive symptoms (as this case)
- Malignant nodule

Question 186 of 191

Question Difficulty:

Easy

Mrs. X was admitted to the ED due to abdominal pain, diarrhea and vomiting. She has a history of type-1 diabetes mellitus and pernicious anemia. She was reported 1 month earlier due to weight loss.

Examination reveals she has high fever at 41.5 C and BP of 180/80 mmHg. She is flushed, disorientated, agitated and jaundiced.

Investigations show:

Hemoglobin	10 g/dL	(Male: 11.5-13.5 g/dL)
Leukocyte count	9 X10 ⁹ /L	(4.0-11.0 X 10 ⁹ /L)
Fasting glucose	2.5 mmol/l	(3-6 mmol/l)
TSH	0.2 U/l	(0.5-4.5 U/l)
Free T4	28 pmol/L	10 - 23 pmol/L

Which of the following drugs should be avoided?

- ☐ Propranolol
- ☐ Potassium iodide
- ☒ Aspirin
- ☒ Propylthiouracil
- ☐ Prednisolone

Description

This patient has thyroid storm (thyrotoxic crisis) over a non-diagnosed Graves' disease. Thyroid storm is an acute, life-threatening, hyper metabolic state induced by excessive release of thyroid hormones in individuals with thyrotoxicosis.

It is manifested by fever > 41°C, respiratory distress, cardiac arrhythmia, hypertension, abdominal pain, nausea and vomiting, seizures and coma. Management includes:

- High-dose propylthiouracil
- Iodine compounds (Lugol iodine or potassium iodide) to block the release of thyroid hormone
- Glucocorticoids to decrease peripheral conversion of T4 to T3
- Propranolol for arrhythmia and hypertension

Antipyretics as aspirin should be avoided as they may make thyrotoxicosis worse by displacing thyroid hormones from the thyroid-binding globulins.

Question 187 of 191

Question Difficulty:

Easy

Mr. X was referred to the ED with severe central abdominal pain. Acute pancreatitis was diagnosed. Examination shows Eruptive xanthomas. His lipid profile shows:

Total cholesterol	4.8 mmol/L	< 5.2 mmol/L
Triglyceride	3.6 mmol/L	< 1.70 mmol/L
High-density lipoprotein (HDL)	0.8 mmol/L	< 1.03 mmol/L
Low-density lipoprotein (LDL)	1.4 mmol/L	< 1.3 mmol/L

What is management of choice for his lipid abnormalities?

- ☐ Aspirin therapy
- ☒ Fenofibrate
- ☐ Ezetimibe
- ☐ Pravastatin
- ☐ Niacin

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- ☐ Pravastatin
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Description

This patient has familial hypertriglyceridemia. It is manifested by: eruptive xanthomas, Lipemia retinalis (creamy appearance of the retinal blood vessels shown in the image) and acute pancreatitis.

Fibrate is the mainstay management.

CHECK ANSWER

END SESSION

NEXT

Question 188 of 191

Question Difficulty:

Hard

18 years Miss X is complaining of headache and fatigue. She had a long history of chronic cough and had an episode of pneumonia with anaerobic bacteria.

Examination shows BMI of 16, and BP of 90/60 mmHg. There is atrophy of the breasts and loss of muscle mass. Her skin is dry and her hair is thin. Her fingers shows cyanosis and calluses on the back of the hand. Investigations show:

AST	120 U/L	(8-20 U/L)
Serum amylase	280 U/L	(25-125 U/L)
Serum creatinine	88 mmol/L	(53-106 mmol/L)
Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	3.0 mmol/L	(3.5-5.0 mmol/L)
Serum bicarbonate	34 mmol/L	(22-28 mmol/L)

What is the most likely diagnosis?

- ☐ Syndrome of inappropriate antidiuretic hormone
- ☐ Diuretic abuse
- ☐ Addison disease
- ☒ Bulimia nervosa
- ☐ Anorexia nervosa

Description

Bulimia nervosa is an eating disorder characterized by binge eating followed by purging (self-induced vomiting or laxatives abuse to induce diarrhoea). Signs and symptoms are as anorexia nervosa plus:

- Gastrointestinal symptoms - Pharyngeal irritation, abdominal pain and hemoptysis
- Pulmonary symptoms - aspiration pneumonitis and pneumo-mediastinum
- Russell sign (calluses on the knuckles or back of the hand)

CHECK ANSWER

END SESSION

NEXT

Question 189 of 191

Question Difficulty:

Hard

Mr. X was found to have serum calcium

of 3.2 mmol/L on regular follow up. He had never complaint of bone pain or renal stones.

Other investigations show:

Serum calcium	2.9 mmol/L	(2.1-2.8 mmol/L)
Serum phosphate	0.9 mmol/L	(0.81 - 1.45 mmol/L)
PTH	5.8 pmol/l	0.9-5.4 pmol/l
Urinary calcium	21 mg/24h	25-300 mg/24h
Urinary phosphate	40 mmol/24h	13-42 mmol/24h

What is the management of choice?

- ☐ Atrialcaldol
- ☒ Follow up
- ☐ Cinacalcet
- ☒ Bisphosphonates
- ☐ Phosphate binders

Description

This patient has familial hypocalciuric hypercalcemia. It is an autosomal dominant defect of calcium-sensing receptor in the parathyroid and kidney tissue characterized by moderate chronic hypercalcemia and normal or moderately elevated plasma PTH concentrations.

No treatment is generally required, as bone demineralization and kidney stones (hyperparathyroidism complications) are relatively uncommon.

CHECK ANSWER

END SESSION

NEXT

Question 190 of 191

Question Difficulty:

Hard

25 years Mrs. X was seeking medical advice as has been unable to conceive for 18 months. Examination reveals she has BMI of 26. Investigations show:

LH	8 IU/L	1-20 IU/L
FSH	6 IU/L	1-20 IU/L
Serum prolactin	45 ng/L	2-29 ng/mL
Fasting glucose	6 mmol/L	3.5-5.5 mmol/L

What is the management of choice?

- ☐ Assisted reproductive techniques
- ☐ Cyproterone acetate
- ☒ Clomiphene
- ☐ Ethinyloestradiol
- ☐ Metformin

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- ☐ Metformin

Description

This lady has manifestations of polycystic ovarian syndrome. It is manifested by raised LH:FSH ratio (>1), prolactin level is mildly elevated, testosterone, dehydroepiandrosterone and androstenedione levels are mildly elevated.

Infertility is managed by clomiphene alone or combined with metformin.

CHECK ANSWER

END SESSION

NEXT

Question 191 of 191

Question Difficulty:

Hard

Mr. X with type 2 diabetes is complaining difficulty in controlling his blood glucose even he uses maximum doses of metformin. His HbA1c level was 7.5% (58 mmol/mol).

What is the management of choice?

- ☐ Add Insulin to Metformin
- ☐ Sulfonylurea and Sitagliptin
- ☒ Canagliflozin and Sulfonylurea
- ☐ Add Pioglitazone to Metformin
- ☐ Pioglitazone and Sulfonylurea

Description

If HbA1c levels are not adequately controlled by a single drug and rise to 58 mmol/mol (7.5%) or higher NICE intensifying drug treatment (First intensification with dual non-insulin drugs and Second intensification with triple non-insulin drugs or any treatment combination containing insulin)

CHECK ANSWER

END SESSION

NEXT

Session Statistics

📊 Answered 190

✓ Correct 43

✗ Incorrect 147

📈 Average Score: 22.63 %